(18,304.)

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1902.

No. 183.

JOSEPH J. MARTIN, ALFRED M. FULLER, AND THOMAS B. SCHRIVER, COPARTNERS, TRADING AS MARTIN, FULLER & COMPANY, PETITIONERS,

vs.

THE STEAMSHIP "SOUTHWARK," WHEREOF THE INTERNATIONAL NAVIGATION COMPANY IS OWNER.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT.

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Transcript of Record.

United States Circuit Court of Appeals for the Third Circuit, March Term, 1901.

JOSEPH J. MARTIN, ALFRED M. FULLER, and THOMAS B. Schriver, Copartners Trading as Martin, Fuller & Company, Libellant-, Appellant-,
vs.
THE STEAMSHIP "SOUTHWARK," Whereof the International Navigation Company is Owner, Respondents, Appellees.
} No. 8.

Appeal from the district court of the United States for the eastern district of Pennsylvania.

Filed December 17, 1900.

In the District Court of the United States for the Eastern District of Pennsylvania. In Admiralty.

JOSEPH J. MARTIN, ALFRED M. FULLER, WILLIAM Fuller, and Thomas B. Shriver, Trading as Martin, Fuller & Company,
vs.
THE STEAMSHIP "SOUTHWARK," Whereof the International Navigation Company is Owner.
} No. 16 of 1895.

Breach of contract of affreightment.

Pleas before the honorable the judge of the district court of the United States for the eastern district of Pennsylvania.

It is thus contained:

Be it remembered that on the 21st day of February, A. D. 1895, Horace L. Cheyney, Esq., and John F. Lewis, Esq., proctors of said court, come into said court and exhibit the libel and complaint of Joseph J. Martin, Alfred M. Fuller, William Fuller and Thomas B. Shriver, trading as Martin, Fuller & Company, against the steamship "Southwark," whereof the International Navigation Company is owner, in a cause of breach of contract of affreightment, civil and maritime and the same being filed is in the words and figures following, to wit:

LIBEL.

To the Honorable, William Butler, Judge of the District Court of the United States for the Eastern District of Pennsylvania:

The libel and complaint of Joseph J. Martin, A. M. Fuller, William M. Fuller and Thomas B. Schriver, co-partners, trading under the firm name of Martin, Fuller & Company, wholesale meat merchants of the City of Philadelphia, against the steamship "Southwark," whereof Passow now is, or late was, master, her engines, boilers and machinery, tackle, apparel and furniture, in a cause of breach of contract of affreightment, civil and maritime, alleges as follows:

I. That on or about July 3d, A. D. 1894, the libellants, who are wholesale dealers and exporters of fresh meat in the City of Philadelphia, delivered on board the said steamship "Southwark," one of the American Line of steamships, who are common carriers for hire between Philadelphia and Liverpool, in good order and condition, 961 quarters of fresh beef, which the agents and owners of said steamship, in consideration of the sum of $1531.26 freight paid to them, agreed to safely carry to the port of Liverpool, and there deliver the same to W. D. Craven, in like good order and condition, as appears by a copy of a bill of lading delivered to the libellants which is attached hereto, marked "Exhibit A," and made a part hereof. The said W. D. Craven, who is designated in the said bill of lading as the consignee, was and is the agent of the libellants at London for the sale of said meat.

II. The said steamship "Southwark" is engaged in carrying, *inter alia*, fresh meats between Philadelphia and Liverpool, and for that purpose is supplied with refrigerating apparatus and compartments specially constructed wherein a greatly reduced temperature is maintained in order to carry said cargoes of fresh meat safely, all of which the libellants had knowledge, and by reason thereof the said fresh meat was

delivered on board of the said steamship for transportation to Liverpool as aforesaid.

III. At the time the said steamship "Southwark" sailed from Philadelphia with said cargo on board, the refrigerating apparatus hereinbefore referred to, was out of repair and was working badly, and during the said voyage was not repaired, so that it was not possible to reduce the temperature in the compartments where said meat was carried, to the proper degree, and consequently upon the arrival of the said steamship at Liverpool and the delivery of said meat to the said W. D. Craven, the libellants' agent, the greater part thereof was spoiled and damaged to the loss of the libellant in the sum of $6,036.

IV. The said steamship "Southwark" is now within the port of Philadelphia and Eastern District of Pennsylvania.

V. That all and singular the premises are true and within the admiralty and maritime jurisdiction of the United States and of this Honorable Court.

Wherefore the libellant prays that process in due form of law according to the course of this Court in cases of admiralty and maritime jurisdiction may issue against the said steamship "Southwark," her engines, boilers and machinery, tackle, apparel and furniture, and that all persons claiming any interest therein may be cited to appear and answer all and singular the matters aforesaid, and that this Honorable Court would be pleased to decree the payment of damages as aforesaid with interests and costs, and that the said steamship may be condemned and sold to pay the same, and that the libellants may have such other and further relief as in law and justice they may be entitled to receive.

EASTERN DISTRICT OF PENNSYLVANIA—*ss.:*

being duly affirmed, says that the facts set forth in the foregoing libel are true, to the best of his knowledge, information and belief.

Affirmed and subscribed to before me this day of February, A. D. 1895.

Bill of Lading.

RECEIVED, in apparent good order and condition, by the American Line, from Martin, Fuller & Co., to be transported by the good steamship "Southwark," now lying in the port of Philadelphia, and bound for Liverpool, with liberty to call at Queenstown, a quantity of fresh beef, said to be 961 quarters (nine hundred and sixty-one), more or less, shipper's count, being marked and numbered as per margin, shipper's weight (quality, contents and value unknown), and to be delivered in like good order and condition at the port of Liverpool (or so near thereto as she may safely get), unto William D. Craven, or to his or their assigns. Freight, primage and charges to be paid in cash, without discount on the said goods, on discharge, at the rate of fifteen shillings sterling, 40 cubic feet, with five per cent. primage, and charges as per margin. General average payable according to York-Antwerp Rules, 1890.

It is mutually agreed that the ship shall have liberty to sail with or without pilots; that the carrier shall have liberty to convey goods in lighters to and from the ship at the risk of

the owners of the goods; and in case the ship shall put into a port or refuge, or be prevented, from any cause, from proceeding in the ordinary course of her voyage, to tranship the goods to their destination by any other steamship; that the carrier shall be liable for loss or damage occasioned by fire from any cause, or wheresoever occurring by barratry of the master or crew; by robbers; by arrest and restraint of princes, rulers or people, riots, strikes, or stoppages of labor; by explosion, bursting of boilers, breakage of shafts, or any latent defect in hull, machinery or appurtenances; by heating, decay, putrefaction, rust, sweat, change of character, drainage, leakage, breakage, or any loss or damage arising from the nature of the goods or the insufficiency of packages; nor for land damage; nor for the obliteration, errors, insufficiency, or absence of marks, numbers, address or description; nor for risk of craft, hulk or transhipment; nor for any loss or damage caused by the prolongation of the voyage; and that the carrier shall not be concluded as to correctness of statements herein of weight, quality, contents and value.

It is mutually agreed that this shipment is subject to all the terms and provisions of and all the exemptions from liability, contained in the Act of Congress of the United States, approved of on the 13th day of February, 1893.

1. It is also mutually agreed that the carrier shall not be liable for articles comprised in Section 4281 of the Revised Statutes of the United States, unless notice of true character and value thereof is given and same is entered in the Bill of Lading.

2. Also, that the shipper shall be liable for any loss or damage to ship or cargo caused by inflammable, explosive or dangerous goods, shipped without full disclosure of their nature, whether such shipper be principal or agent, such goods may be thrown overboard or destroyed at any time without compensation.

3. Also, that the carrier shall have a lien on the goods for all freights, primages and charges and also for all fines or

damages which the ship or cargo may incur or suffer by reason of the incorrect or insufficient marking, numbering, or addressing of packages or description of their contents.

4. Also, that in case the ship shall be prevented from reaching her destination by Quarantine, the carrier may discharge the goods into any Depot or Lazaretto, and such discharge shall be deemed a final delivery under this contract, and all the expenses thereby incurred on the goods shall be a lien thereon.

5. Also, that the ship may commence discharge immediately on arrival and discharge continuously, the Collector of the Port being hereby authorized to grant a general order for discharge immediately on arrival, and if the goods be not taken by the Consignee within such time as is provided by the regulations of the port of discharge, they may be stored by the carrier at the expense and risk of their owners.

6. Also, that full freight is payable on damaged or unsound goods; but no freight is due on any increase in bulk or weight caused by the absorption of water during the voyage.

7. Also, that if on a sale of the goods at destination for freight and charges, the proceeds fail to cover said freight and charges, the carrier shall be entitled to recover the difference from the shipper.

8. Also, that in the event of claims for short delivery when the ship reaches her destination, the price shall be the market price at the port of destination on the day of the ship's entry at the Custom House, less all charges saved.

9. Also, that merchandise on wharf awaiting shipment or delivery be at shipper's risk of loss or damage by fire or flood, not happening through the fault or negligence of the owner, master, agent or manager of the vessel.

10. Also, that this Bill of Lading, duly endorsed, be given up to the Ship's Consignee in Exchange for Delivery Order.

11. Also, that the Freight prepaid will not be returned, goods lost or not lost.

12. Also, that parcels for different consigeees collected or made up in single packages addressed to one consignee pay full freight on each parcel.

13. Also, that the Master Porterage of the delivery of the cargo be done by the consignee of the ship, and the expenses thereof to be paid by the Receiver of Cargo.

14. Also, that freight payable on weight is to be paid on gross weight landed from Ocean Steamship, unless otherwise agreed to or herein otherwise provided, or unless the carrier elects to take the freight on the Bill of Lading weight.

And Finally, in accepting this Bill of Lading, the Shipper, Owner and Consignee of the goods and the holder of the Bill of Lading agree to be bound by all of its stipulations, exceptions and conditions, whether written or printed, as fully as if they were all signed by such Shipper, Owner, Consignee or Holder.

IN WITNESS WHEREOF, the Mastor or Agent of the said ship hath affirmed to three Bills of Lading, all of this tenor and date, one of which being accomplished, the others to stand void.

Dated in Philadelphia, this 3rd day of July, 1894.

INTERNATIONAL NAVIGATION COMPANY,

General Agents.

Per E. M. TYRRELL.

(*The following clause is printed on the face of the bill of lading*):

"It is expressly agreed that the goods shipped hereunder are absolutely at the risk of the owners in every respect, and that the carrier is responsible for no loss, delay or damage thereto however arising, including stowage and all risks of breakdown or injury however caused, either to its refrigerator or its machinery, even though arising from defect existing at or previous to the commencement of the voyage; also that in case of the meat becoming, from any cause in the opinion of the master of the vessel, putrid, dangerous or offensive to the

passengers or crew, it may be thrown overboard or otherwise disposed of, without liability to the carrier for consequent loss."

(*On Margin.*)

AMERICAN LINE.

PHILADELPHIA TO LIVERPOOL.

International Navigation Company, General Agents, Philada.

Richardson, Spence & Co. Agents, Liverpool.

SHIPPERS' MARKS.

Freight on	15905 ft 7 in. at 15 per ton	298 4 7	
	Primage 5 per cent.	14 18 3	
		313 2 10	stg.
	Charges	$1531.26	
	Ex at $4.89		

DEPOSITIONS.

MARTIN, FULLER & CO.	}	U. S. D. C.
v.	}	E. D. of Penna.
STEAMSHIP "SOUTHWARK."	}	No.

Testimony taken at the Office of Messrs. Lewis and Cheyney, No. 430 Walnut Street, July 1, 1895, at 3.30 o'clock P. M.

Present: H. L. CHEYNEY, ESQ., for libellants,
J. RODMAN PAUL, ESQ., for respondent.

Mr. Cheyney offers in evidence copy of Bill of Lading, issued by the International Navigation Company, of Philadelphia, to Martin, Fuller and Co. for quantity of fresh beef, marked, "Libellants' Exhibit No. 1, July 1st, 1895;" the execution and delivery of which to the libellants is admitted by the answer filed by the respondents.

Mr. Cheyney calls upon the counsel for libellants to state whether or not they admit the shipment of meat by the steamer "Southwark" was damaged upon its arrival at Liverpool, as the answer filed states,

"Upon arrival at the port of Liverpool, respondent was informed that some of libellants shipment of meat was found spoiled and damaged. Respondent asks that proof thereof be made, if material."

MR. Paul states that they do not admit that the meat was damaged. They are informed by libellant and others that it was damaged, but asks that due proof of this fact be made.

Copy of bill of lading attached.

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Libellants' Exhibit No. 1.

July 1st, 1895.

RECEIVED, in apparent good order and condition, by the AMERICAN LINE, from MARTIN, FULLER & Co., to be transported by the good Steamship "Southwark," now lying in the port of Philadelphia, and bound for Liverpool, with liberty to call at Queenstown, a quantity of fresh beef, said to be (961) tons, Nine hundred and sixty-one (more or less) Shippers count, being marked and numbered as per margin shippers' weight (quality, contents and value unknown) and to be delivered in like good order and condition at the port of Liverpool or so near thereto, as she may safely get) unto Wm. O. Craven, or to his or their assigns. Freight, primage and charges to be paid in cash without discount on the said goods on discharge at the rate of Fifteen shillings Stg. for 40 cu. ft. with 5 per cent. primage, and charges as per margin General Average payable according to York-Antwerp rules 1890.

It is mutually agreed, that the Ship shall have liberty to sail with or without pilots, that the carrier shall have liberty to convey goods in lighters to and from the ship at the risk of the owners of the goods, and in case the ship shall put into a port of refuge, or be prevented from any cause from proceeding in the ordinary course of her voyage, to tranship the goods to their destination by any other steamship; that the carrier shall not be liable for loss or damage occasioned by fire from any cause or wheresoever occurring by barratry of the master or crew; by robbers, by arrest and restraint of princes, rulers or people, riots, strikes or stoppage of labor, by explosion, bursting of boilers, breakage of shafts or any latent defect in hull, machinery or appurtenances; by heating, decay, putrefaction, rust, sweat, change of character drainage, leakage, breakage, or any loss or damage arising from the nature of the goods or the insufficiency of packages, nor for land damages, nor for the obliteration, errors, insufficiency, or absence of marks, numbers, address or description;

nor for risk of craft, hulk or transhipment, nor for any loss or damage caused by the prolongation of the voyage, and that the carrier shall not be concluded as to correctness of statements herein of weight, quality, contents and value.

It is also mutually agreed, that this shipment is subject to all the terms and provisions of, and all the exemptions from liability contained in the Act of Congress of the United States, approved on the 13th day of February, 1893.

1. It is also mutually agreed that the Carrier shall not be liable for articles comprised in Section 4281 of the Revised Statutes of the United States, unless notice of true character and value thereof is given and same entered in the Bill of Lading.

2. Also, that Shippers shall be liable for any loss or damage to ship or cargo caused by inflammable, explosive or dangerous goods, shipped without full disclosure of their nature, whether such shipper be principal or agent; and such goods may be thrown overboard or destroyed at any time without compensation.

3. Also, that the Carrier shall have a lien on the goods for all freights, primages and charges, and also for all fines or damages which the ship or cargo may incur or suffer by reason of the incorrect or insufficient marking, numbering or addressing of packages or description of their contents.

4. Also, that in case the ship shall be prevented from reaching her destination by Quarantine the Carrier may discharge the goods into any Depot or Lazaretto, and such discharge shall be deemed a final delivery under this contract, and all the expenses thereby incurred on the goods shall be a lien thereon.

5. Also, that the ship may commence discharge immediately on arrival and discharge continuously, the Collector of the port being hereby authorized to grant a general order for discharge immediately on arrival, and if the goods be not taken by the consignee within such time as is provided by the

regulations of the port of discharge, they may be stored by the Carrier at the expense and risk of their owners.

6. Also, that full weight is payable on damaged or unsound goods; but no freight is due on any increase in bulk or weight caused by the absorption of water during the voyage.

7. Also, that if on a sale of the goods at destination for freight and charges, the proceeds fail to cover said freight and charges, the Carrier shall be entitled to recover the difference from the Shipper.

8. Also, that in the event of claims for short delivery when the ship reaches her destination, the price shall be the market price at the port of destination on the day of the Ship's Entry at the Custom House, less all charges saved.

9. Also, that merchandise on wharf awaiting shipment or delivery be at shipper's risk of loss or damage by fire o flood, not happening through the fault or negligence of the owner, master, agent or manager of the vessel.

10. Also, that this Bill of Lading, duly endorsed, be given up to the Ship's Consignee in exchange for delivery order.

11. Also, that the freight prepaid will not be returned, goods lost or not lost.

12. Also, that parcels for different consignees, collected or made up in single packages addressed to one consignee, pay full freight on each parcel.

13. Also, that the Master Porterage of the delivery of the cargo be done by the consignee of the ship, and the expenses thereof to be paid by the Receivers of Cargo.

14. Also, that freight payable on weight is to be paid on gross weight landed from ocean steamship, unless otherwise agreed to or herein otherwise provided, or unless the Carrier elects to take the freight on the Bill of Lading weight.

And Finally, in accepting this Bill of Lading, the Ship-

per, Owner and Consignee of the goods and the holders of the Bill of Lading agree to be bound by all of its stipulations, exceptions and conditions, whether written or printed, as fully as if they were all signed by such Shipper, Owner, Consignee or Holder.

IN WITNESS WHEREOF, the Master or Agent of the said ship hath affirmed to Three Bills of Lading, all of this tenor and date, one of which being accomplished, the others to stand void.

Dated in Philada. this third day of July, 1894.

INTERNATIONAL NAVIGATION COMPANY,

General Agents.

Per E. M. TYRRELL.

(*The following clause appears on the face of the bill of lading.*)

"It is expressly agreed that the goods shipped hereunder are absolutely at the risk of the Owners in every respect, and that the Carrier is responsible for no loss, delay or damage thereto however arising, including stowage and all risks of breakdown or injury however caused, either to its refrigerator or its machinery even though arising from defects existing at or previous to the commencement of the voyage, also, that in case of the meat becoming from any cause in the opinion of the master of the vessel, putrid, dangerous or offensive to the passengers or crew, it may be thrown overboard or otherwise disposed of, without liability to the carrier for consequent loss."

(*On Margin.*)

AMERICAN LINE.

PHILADELPHIA TO LIVERPOOL.

International Navigation Company, General Agents, Philadelphia.

Richardson, Spence & Co. Agents, Liverpool.

Shippers' Marks.

	Tons.	Cwt.	Qrs.	Lbs.		
Freight on				at Ton, L.		
" "	15905 ft. 7 in.			15	29 8 4 7	
	Primage.			5ct.	14 18 3	
					313 2 10	Stg.

Charges,—

Ex. at $4.89 $1531.26 F. H.

Freight Paid here.

Depositions on behalf of libellants taken at the office of Lewis & Cheyney, No. 430 Walnut Street, September 18, 1895, at 3.30 P. M.

Present: H. L. CHEYNEY, Esq., for libellant;
J. R. PAUL, Esq., for respondent.

Mr. Cheyney, in accordance with the notice heretofore given Messrs. Biddle & Ward, proctors for respondent, calls upon Mr. Paul to produce a copy of the engineer's log of the steamer "Southwark," for the voyage commencing July 4, 1894.

LODGE COLTON, being duly sworn according to law, testifies as follows:

By MR. CHEYNEY:

Q. Captain, what is your occupation?

A. Surveyor, for the Insurance Company of North America.

Q. How long have you been engaged with the Insurance Company of North America?

A. Four years; not quite four years.

Q. What was your occupation prior to that time?

A. Master mariner.

Q. How long had you followed the sea?

A. Forty-five years.

Q. How long have you been master mariner?

A. Since '61.

Q. In what class of vessels have you been employed, steam or sail?

A. Latterly, in steam.

Q. In what trade were you engaged?

A. Principally in the Cuban and Mexican trade.

Q. What are your duties as surveyor for the Insurance Company of North America?

A. When a risk is offered to us, on vessels in this port, if we have any doubt, I generally go and look at it. Also, to examine damaged cargoes, that come into port damaged.

Q. Are you familiar with the practice on steamships of carrying perishable cargoes?

A. Yes, sir.

Q. How long have such cargoes been carried to your knowledge?

(Mr. Paul objects, as irrelevant.)

A. Ever since I have been on steamships we have carried perishable cargoes.

Q. What means are employed in carrying perishable cargoes to prevent damage?

A. What kind of cargoes?

Q. Well, fresh meats?

A. They are carrying them in refrigerators.

Q. Is that a common or uncommon method?

A. Quite common method now.

Q. Is carrying fresh meats a common thing in trade?

A. Yes, sir.

Q. What lines between here and England, for instance, are engaged in carrying fresh meats?

A. The National Line, and I think several boats on the Cunard Line; two or three lines out of New York carry it.

Q. What degree of skill or care is necessary to safely carry cargoes of fresh meat, by the means you have described?

(Objected to,)

A. Ordinary skill is all that would be required, to see that the apparatus, doors and everything are properly attended to, and in good order.

Q. Have you ever carried cargoes of fresh meat yourself as master mariner?

A. For our own consumption on board ship, yes.

Q. That was, of course, in small quantities?

A. Yes, sir. Sufficient to last a large number of persons twenty or thirty days.

Q. Did you ever have any trouble in carrying cargoes of that character?

A. No, sir.

Q. What temperature is it necessary to maintain in the refrigerating room in order that it may be carried without damage?

(Objected to.)

A. About 26.

Q. A copy of the log of the steamer "Southwark," which has been furnished, shows, for the first three days of the voyage of the steamer, after leaving Philadelphia, the temperature in the refrigerating room was forty-two degrees, please state, whether or not, in your opinion, that indicates that a proper degree of skill was being exercised?

(Objected to, because it does not appear that the witness is an expert, in the manner of carrying fresh meat for commerce.)

A. I should think that something was the matter with the machine, air holes or space somewhere.

That is all.

CROSS-EXAMINATION.

By MR. PAUL:

×*Q.* Captain, how long have they been carrying fresh meat as a matter of commerce, for export?

A. I cannot tell you exactly about that. I think this last eight or nine years, to my knowledge. I, myself, have carried it since '65, for consumption on the ship.

×*Q.* You have never carried it for commerce?

A. No, sir.

×*Q.* You have carried it with what sort of refrigerator, ice?

A. Ice, principally; and the ammonia or freezing process

×*Q.* Have you carried it with the ammonia freezing process?

A. Yes, sir.

×*Q.* Are you familiar with the refrigerating machine used on the "Southwark"?

A. I cannot say that I am.

By MR. CHEYNEY:

×*Q.* Do you know what type it is?

A. The Kilburn.

By MR. PAUL:

×*Q.* You have never examined it?

A. No, sir. I only took a casual look at it.

×*Q.* You are not familiar with the actual temperature which is maintained in these commerce boxes?

A. Yes, sir; they generally try to keep the temperature below the freezing point.

×*Q.* Do you think it is usually kept at twenty-six?

A. Between twenty-six and thirty.

×*Q.* As a matter of fact, is this done?

A. Yes, sir; it would spoil if it was not.

×*Q.* Because it is the usual temperature that is used?

A. Yes, sir.

×*Q.* If it should turn out then, that they use a higher

temperature than that in carrying fresh meat, that would modify your view?

A. I do not think that they are carrying it any higher than that.

×*Q.* If they are carrying it at thirty to thirty-two that would modify your view?

A. I do not think that it can be carried above that, above 32.

×*Q.* Have you seen the logs or daily statements of temperature on these vessels? On "Southwark"?

A. No, sir.

×*Q.* You cannot tell from any knowledge of your own?

A. I can tell of my own personal observation.

×*Q.* That is of your ship's own refrigerator, not as to commerce boxes?

A. I should say, if it applied to the ship's provisions, carried in warm temperatures, in the Gulf Stream, it would apply to ships going across the Atlantic Ocean.

×*Q.* If meat is frozen, or chilled to a low temperature before it is put on board, then it would not need so low a temperature while on board to carry it, would it?

A. That would depend upon circumstances; how the meat was frozen before it went aboard, and the passage on the vessel. I do not think meat is ever frozen as hard in cars as it is on ships.

×*Q.* If it is frozen when it is put on board, it is likely to keep; in a high temperature, it is likely to be kept frozen? If meat was carried from a butcher shop on the street and put in a refrigerator, it would require a somewhat lower temperature than if it was brought in freezing, provided the freezing temperature was kept at thirty-two?

A. If the temperature was at thirty-two, and it would be kept at thirty-two right along, I do not think that would preserve it all along.

×*Q.* What makes you think that?

A. My experience is, that at times there may be a little heat, that would come around. On all steamers there is

more or less, and if you only keep it to that height, freezing point, it will not keep. You must keep it below the freezing point to make a sure thing of it.

×*Q.* Provided it is always kept at freezing point, that would be sufficient?

A. It ought to be; but it does not leave any margin for accidents.

×*Q.* It is merely because it does not give a margin for accidents?

A. But you must have a margin for these ammonia machines.

×*Q.* You do not mean meat must be kept at 26 degrees to preserve it, but it should be kept always at freezing point?

A. It should be kept at 26 to safely carry it.

×*Q.* You cannot say anything from actual experience on those vessels transporting meats for commerce?

A. I never made a passage on them. I can tell what I have seen, and by the reports from the meat being sold on the other side.

(Mr. Paul objects to all this witness's testimony as irrelevant.)

That is all.

(Mr. Cheyney calls upon Mr. Paul to state whether or not he admits any damage was done to the cargo of meat carried on board the "Southwark?")

(Mr. Paul is not prepared to say.)

(Mr. Cheyney calls upon Mr. Paul to produce the report of this accident made by the chief engineer of the steamer "Southwark" to Mr. Doran, on July 30, 1894.)

(Signature waived.)

Deposition of JAMES AUGUSTUS LIPPINCOTT, taken at Liverpool, England, before HAROLD DINGWALL BATESON, ESQ., Commissioner under commission issued out of this Court:

Interrogatories.

First.—What is your name, age and residence?

To the first interrogatory he saith that his name is James Augustus Lippincott; his age thirteen years; and his private residence, 48 Durning Road, Liverpool, England.

Second.—What is your business? How long have you been engaged in that business, and at what place? State whether or not you have had experience in the importation of fresh meats from America. If you answer that you have, state fully what experience you have had?

To the second interrogatory he saith that he is a meat commission agent and shipping butcher; that he has been engaged in that business for between twenty and twenty-one years, in Liverpool; that he has had experience in the importation of fresh meats from America; and that he has been in the said trade since November, 1875, in fact, ever since it started.

Third.—Do you know the firm of Martin, Fuller & Company, of Philadelphia? Do you know William D. Craven, of London, England? If you answer that you know either one or both, please state whether, in the month of July, 1894, you had business relations with either of them. If you answer that you had, state fully what those relations were?

To the third interrogatory he saith that he knows the firm of Martin, Fuller & Company, of Philadelphia; that he also knows William D. Craven, of London, England; that in the month of July, 1894, deponent had business relations with both Martin, Fuller & Company, and William D. Craven; that in the said month of July, 1894, meat was consigned to the said William D. Craven by Martin, Fuller & Company, and that deponent received all the said meat in Liverpool on behalf of the said William D. Craven. and sold a portion of it on commission.

Fourth.—State whether you have any knowledge of the shipment of nine hundred and twenty quarters of beef from

Philadelphia on July 4, 1894, by Martin, Fuller & Company, consigned to William D. Craven, per steamship "Southwark," arriving at Liverpool about July 14, 1894?

To the fourth interrogatory he saith that he has knowledge of the shipment of nine hundred and twenty quarters of beef from Philadelphia, referred to in this interrogatory.

Fifth.—If you answer that you have knowledge of such shipment, please state whether you saw said meat at the time of the arrival of said shipment at Liverpool. If you answer that you did see it, please state the time when you first saw it; the place; and describe fully its condition at that time?

To the fifth interrogatory he saith that he saw the said meat as soon as the refrigerator was opened after the arrival of the vessel at Liverpool. Deponent first saw the said meat on Monday, the 16th of July, 1894, at the steamer's own berth, Langton Branch Dock, Liverpool. The meat was in very bad condition at the time he saw it, and was mouldy and slimy.

Sixth.—Please state whether you saw said meat thereafter. If you did, please state how many times, and describe its condition fully?

To the sixth interrogatory he saith that he saw the said meat thereafter. He saw the said meat continually until it was cleared from the refrigerator on the following day. It was still in bad condition, being mouldy and slimy.

Seventh.—If you state that said meat or any part thereof was spoiled or damaged, please state, if within your knowledge, the cause of such damage?

To the seventh interrogatory he saith that during the voyage the refrigerating machinery was stopped several times and deponent attributes to this cause the damage to the said meat.

Eighth.—Do you know what disposition was made of said shipment of nine hundred and twenty quarters of beef? If you answer that any part of it was sold in Liverpool, state

why it was sold; by whom; what price was realized for it and when it was sold?

To the eighth interrogatory he saith that he knows of the disposition of the said shipment. 111 fores or quarters were sold by deponent in Liverpool, on the 17th of July, 1894, and the balance of 809 quarters was sent by him to the said William D. Craven, at London. 250 quarters were sent to him on the 16th of July, 1894, and 559 quarters on the 17th of July, 1894. The said 111 quarters were all that deponent was able to sell in Liverpool. The price realized by the sale of the said 111 quarters was three halfpence per pound.

Ninth.—Was all of said shipment of nine hundred and twenty quarters of beef sold at Liverpool? If you answer "No," please state what disposition was made of that part of the shipment which was not sold there?

To the ninth interrogatory he saith that he refers to his answer to the eighth interrogatory.

Tenth.—Do you know or can you set forth any other matter or thing which may be of benefit or advantage to the parties at issue in this case, or either of them, or that may be material to the subject of this, your examination, or the matters in question in this cause? If yes, set forth the same fully and at large in your answer?

To the tenth interrogatory he saith that he does not know of any other matter or thing which may be of benefit or advantage to the parties at issue in this case, or either of them.

Cross Interrogatories.

First.—If in answer to the fifth interrogatory you state that you saw the meat at the time of the arrival of the said shipment at Liverpool, please state further whether you saw it all or only certain portions thereof; if only certain portions, how much thereof?

To the first cross interrogatory he saith that he saw all the said meat at the time stated.

Second.—If in answer to the sixth interrogatory you say you saw the meat thereafter, please state when and where you thus saw it, and how much thereof you saw, whether in whole or in part?

To the second cross interrogatory he saith that he refers to his answer to the sixth direct interrogatory, and further states that he saw the whole of the said meat.

Third.—If in answer to the seventh interrogatory you say the meat or any part thereof was spoiled or damaged, please state exactly to what extent it was damaged, and whether all was equally damaged or one part more than another.

To the third cross interrogatory he saith that the said shipment was all more or less in the same bad condition. The 111 quarters sold in Liverpool were in better condition than the balance sent to London.

Fourth.—If you attempt to state the cause of such damage, please state fully your reasons based solely upon your own knowledge and not upon hearsay for your answer. State how you can know the cause of the damage except by information of others?

To the fourth cross interrogatory he saith that the chief engineer of the "Southwark" informed the deponent on the 16th of July, 1894, that during the voyage to Liverpool the refrigerating machinery had stopped several times, and it is within the knowledge of the deponent himself that it was not working during part of the 17th of July, 1894.

Fifth.—If in answer to the eighth and ninth interrogatories you answer that the meat or any part thereof was sold, state whether there was any contract of sale or documents or invoice showing the amount realized, and annex such documents or any others showing the price received.

To the fifth cross interrogatory he saith that there was no written contract for the sale of the said 111 quarters by him. The deponent annexes a copy of the invoice (marked

"J. A. L.") for the said meat sold by him, showing the price realized by such sale.

Sixth.—In stating the disposition made of the meat not sold, please say whether there are any papers or documents showing this disposition, and if so, annex the same, or copies thereof, hereto?

To the sixth cross interrogatory he saith that the balance of the said meat not disposed of was, as already stated, sent to William D. Craven, to London, and deponent had no documents relating to such balance.

Seventh.—Where was the said meat stored after its arrival in Liverpool and up to the time of its sale or other disposition thereof? What was the temperature of the atmosphere during that time, and was the meat kept chilled by ice or otherwise?

To the seventh cross interrogatory he saith that none of the said meat was stored in Liverpool—that which was sold, was sold *ex*-steamer, and as already stated the balance not sold, was sent to William D. Craven on the 16th and 17th July 1894. The deponent does not know the temperature of the atmosphere at that time.

Eighth.—Is there a market for meat slightly tainted, and if so, how much is paid for such meat?

To the eighth cross interrogatory he saith that there is no special market in Liverpool for meat tainted or in bad condition. We get the best price possible if the meat be out of condition.

Ninth.—If meat is shipped in very hot weather without being properly chilled before shipment may not such damage as you have described have occured from tainting of the meat before shipment.

To the ninth cross interrogatory he saith that if meat were shipped in the condition suggested in this cross-interrogatory, he would expect it to be absolutely rotton on arrival at Liverpool.

Testimony taken on behalf of libellants at No. 123 Liberty street, New York City, May 10, 1898, at 12 o'clock.

Present: HORACE L CHEYNEY, ESQ, for libellants;
J. RODMAN PAUL, ESQ., for claimants.

It is agreed that the testimony shall be taken stenographically, signatures waived.

HUGO B. ROELKER, being duly examined as a witness for the libellants, testifies:

By MR. CHEYNEY:

Q. Where do you live?

A. New York City.

Q. What is your business?

A. A mechanical engineer.

Q. Have you had any experience with refrigerating machinery?

A. Yes; I have been engaged in the manufacture of refrigerating machinery and the care of them as an engineer for fully twenty years.

Q. Will you state whether during that time you have been connected with any companies manufacturing refrigerating machinery?

A. I was for a good many years the superintendent of the Delamater Iron Works in New York, where we built refrigerating machinery of various types. I have also been in the business of expert of refrigerating machinery since I went into business for myself.

Q. How long ago was that?

A. Nine years ago. I am also a manufacturer of refrigerating machinery for vessels of a different type of air refrigerating machines, used for smaller sized ship's machines.

Q. Are you familiar with the refrigerating machinery which is in use in the transatlantic vessels engaged in carrying meat?

A. I am.

Q. What is the type of machinery which is generally used? I mean the process.

A. They are compression ammonia machines.

Q. On the 4th of July, 1894, the steamship "Southwark" loaded a shipment of 920 quarters of beef, shipped by parties in Philadelphia, consigned to Liverpool. The refrigerating machinery was working from 24 to 48 hours prior to the time of the departure of the vessel from her dock. At the time the vessel sailed, the temperature in the commercial room in which the beef was stored was from 38 to 42 degrees, the ship's log showing it to have been the latter figure. Shortly after leaving the dock, within an hour or two, there was an accident to the refrigerating machinery, which has been described by the chief engineer as follows:

"The bonnet on the top of the condenser for the refrigerating machine for the commercial box started to leak badly before we got to Reedy Island, and, with the heat of the room and the smell of ammonia, it was a difficult matter to get it shut off and the condenser pumped out. As soon as I got it shut off, I put the ship's machine on the commercial box. After getting the new joint made on the 5th, and shortly after starting the machine, the after compression pump gave a heavy knock. I exhausted the pump and opened it out, and found both connecting rod bolts broken, connecting rod bent, and compression piston cracked. I then disconnected the engines and worked with a single engine and kept the two boxes going. On the 6th, after connecting the engine, I found the crank shaft was bent, and it was very difficult to straighten it. On the 8th I had it connected, and it has worked fairly well since. The temperature of the box was 42° when we left Philadelphia, and I was unable to get it below that until the 7th. Since then the temperature has gradually decreased to 32°."

Assuming that the temperature of the inflowing water used in the condenser was 73°, I wish you would state whether, in your opinion, the accident which is described in the report of the engineer, could or could not have been caused by the temperature of the water being, as it was, at 73°?

(Objected to as not covering fully the facts.)

A. A temperature of 73° of coolng water is a very frequent and entirely usual one, and every refrigerating machine is built to work in a first class manner with that temperature of cooling, water and it should not cause any accident of any kind, or even bad work in the machine.

Q. You state that the temperature of 73° is a usual one. Do you know the temperature of water which is used in the various refrigerating machinery or not?

A. I have frequently observed the temperature of water used in the refrigerating machines, both on land and at sea. I have seen on land refrigerating machines working with temperatures of about 120°; while it made unusually high pressures, the machines worked well under it, with a greater consumption of steam than they would have done with cold water. In ship's machines, it is very frequent that they have to work with temperatures of water of 80° and more.

Q. You say that is frequent?

A. Yes.

A. Do you know the ordinary temperature of the Gulf Stream in summer weather?

(Objected to unless the witness has himself tested it.)

A. It frequently runs to 80° and more.

Q. Are you familiar with the temperatures in any other waters where refrigerating machines are used?

A. In the Gulf of Mexico the water often rises to 85°; in the Red Sea it goes as high as 90°; and the refrigerating machines are used on vessels passing through it.

A. Are you familiar or not with the transportation of fresh meats by means of artificially cooled rooms upon vessels?

A. I am.

Q. What is the usual time during which the refrigerating machinery is at work cooling off the cold rooms before the vessel leaves her deck or before the meat is placed in the room?

A. About two days or more, if one has time.

Q. Why is such a length of time as two days necessary?

A. It takes a considerable amount of cold to cool the brine which in turn cools the refrigerator rooms. It also takes a considerable amount of cold to cool down the walls and ceilings and floors of the refrigerator rooms and all the apparatus in those; and it is necessary to do this work beforehand, in order to have cold stored up before putting the meat into it, because a rise of temperature always takes place when meat is put into the storage rooms; and it would be too much work for the ice machine to cool down the meat and the warm air which has come in, and the walls of the rooms at the same time, at the starting of the vessel.

Q. Suppose the temperature of the brine flowing into the cold room at the time of the sailing of the vessel was 40°, please state whether or not in your opinion the temperature of the brine was as low as it should have been, or whether it was a proper temperature?

A. It was a very improper temperature; the temperature should have been down to about 15°.

Q. What does that temperature indicate, so far as the working of the machine is concerned, if anything?

A. That the machine had produced very little cold, if it has worked from 24 to 48 hours on the brine, as was stated before.

Q. Was it producing as much effect as it should have produced if it had been working from 24 to 48 hours?

A. I should judge from this temperature that it had worked at a good deal less than half of its proper capacity.

Q. Assuming that the pressure on the refrigerator gauge at the same time was 40 lbs; does that or not indicate a proper pressure?

A. That pressure confirms the temperature of the brine which was just mentioned. It also shows that the ice machine was worked hard at the time when this pressure was registered; but it might not have worked effectively.

Q. If the pressure on the condenser gauge at this time was 210 lbs., please state whether or not, if the temperature of

the cold water was 73° the pressure should have been that much, or less, or more?

A. A temperature of 73° with a machine working under normal conditions would generally give a compression pressure of not more than 175 or 185 lbs.; and a pressure of 210 lbs. indicates that some wrong condition existed in the machine.

Q. What condition could cause the increased pressure?

A. There might have been too little cooling water, or the condenser might have been dirty, which would make the condenser act badly; there might have been non-condensable gas in the machine.

Q. Is the presence of dirt in the condenser something which must be looked for, or is it an uncommon occurrence?

A. It is a usual occurrence for dirt to enter the condenser, and one has to clean it regularly in order to keep it in good condition.

Q. Where does that dirt come from which you say is usually found in the condenser?

A. It comes in with the cooling water. It is not apt to come in at sea, but it is very apt to come in working in a river before starting, where the mud of the river is flowing in with the water.

Q. You have spoken about the presence of certain gases which also might have caused this; is that a common or uncommon occurrence?

A. It is a common occurrence. Ammonia disassociates to some extent into gases; also the oil which gets into the machine disassociates to some extent into non-condensable gases, and these have to be blown off at times.

Q. Are these machines supplied with proper facilities for blowing off these gases, or not?

A. They are.

Q. Are these troubles which are known to every engineer who is operating these machines—the presence of dirt, etc.?

A. They are.

Q. They are easily remedied if proper attention is given to the machine?

A. They are.

Q. How is the dirt which you have spoken of in the condensers removed?

A. The openings are provided, through which it can be washed off, by a hose or similar means.

CROSS EXAMINATION.

By MR. PAUL:

×*Q.* You state that you are familiar with the transatlantic refrigerator plants. What different types are there, or are they all precisely the same?

A. At present I am pretty certain there are no others but ammonia compression machines and carbonic acid compression machines; and there may be a few Bell, Coleman & Haslan machines left in the service between here and Europe, but I have not seen any for a number of years around New York.

×*Q.* How do the last-named machines work? What is the principle?

A. They work through the compression and expansion of air.

×*Q.* Have you ever constructed yourself any of these transatlantic plants, or been concerned in their construction?

A. I have not.

×*Q.* Do you know what is called the Kilbourn refrigerator machine?

A. I have seen them repeatedly.

×*Q.* Have you ever installed or examined one by taking it apart or otherwise going into it?

A. I have seen them together and I have seen them partly disconnected.

×*Q.* I think you said the refrigerating machines that you yourself have been connected with in business directly are not the steamship machines, but those for land; was that correct?

A. The chemical machines which I have built were not used on ships, but on land. I have built a good many air machines which are used for refrigerating ships' meat boxes, but I have not built them as large as those they have for transportation of meat on a large scale.

×*Q.* Are the Kilbourn machines considered a good or proper type of refrigerating machines?

A. They are.

×*Q.* Do you know the difference between the horizontal and the vertical machines of the Kilbourn type?

A. I have seen them both.

Q. Do you know which is the better machine, or have you any opinion on that subject?

A. I am not able to say whether Mr. Kilbourn has built his horizontal machines in the best manner, or his vertical machines. Either can work equally good.

×*Q.* In the working of these machines, the cooling water, the circulating water, which reduces the temperature of the ammonia in the condenser, regulates the working of the whole machine, does it not? That is, accordingly as the temperature is higher or lower, the machine must work with more rapidity and power, or less; it requires more or less work?

A. It does.

×*Q.* And if there should be any weakness or difficulty in the machine, it would be more likely to manifest itself when the water was at a high temperature than at a low?

A. It would.

×*Q.* And if there is to be a breakdown in the refrigerating machinery, you would be more apt to expect it when the temperature of the water and air were high than when they were low?

A. I would.

×*Q.* The cleaning of the condenser which you have spoken requires the stopping of the machine, does it not?

A. It does.

×*Q.* How long does it take to effectually clean a condenser?

A. Good machines are arranged so that it can be done in a couple of hours, or something similar to that.

×*Q.* Are you familiar with the number of times that the ordinary machine of this sort on ships is required to be cleaned at this port?

A. It depends entirely upon circumstances; if a vessel lies in a bad place, it will gather mud sometimes in one day's work; in the open Atlantic it wouldn't gather any mud in two weeks' time, probably not two months' time.

×*Q.* But do you know as a matter of fact how often these condensers are usually cleaned on ocean liners from this port?

A. As I said, it depends entirely upon the place where the ship has been lying; if she lies in a clean place, there is little need of cleaning the condenser; if she lies in a dirty place, the condenser will have to be cleared as it may require it.

×*Q.* There isn't a great difference in the character o the water in which the various steamers of this port lie; they are all together, are they not, or in very close proximity, the transatlantic steamers?

A. Around New York most of them do not require very frequent cleaning.

×*Q.* You can't speak of the conditions in Philadelphia, can you?

A. I have seen the water very muddy around the shores in Philadelphia, but I am not especially familiar with the location at which this vessel was lying before starting.

×*Q.* What is the ordinary difference in these refrigerators between the temperature of the brine and the temperature of the meat box?

A. It varies very much according to the special condition. During the trip the brine is generally 10 to 15 degrees colder than the meat box. In the beginning of cooling down, not so much difference of temperature would exist.

×*Q.* And if anything was wrong with the machine so that it could not work, the tendency would be to bring the temperature of the brine and the preceding temperature of the meat box more and more into accord, would it not?

A. It would.

×*Q.* So that if we see a very close approximation of the temperature of the brine to the temperature of the meat box, it would seem to indicate that the machine had for some reason not been kept working, would it not?

A. It would.

Q. You have been asked with reference to the proper temperature at sailing. The stopping of the machine even for a few hours, would cause the brine to greatly increase, I suppose, in temperature?

A. It would.

×*Q.* And it would make a great difference therefore in taking your temperature, whether you took it before such a stoppage and breakdown, or took it afterwards?

A. It would; if the stoppage was of some length of time

×*Q.* Do you happen to know how these refrigerator logs on the ocean steamships are kept so as to get the figure given for a particular day; whether it be an average or one particular part of a day, or what?

A. It is usual to give the average during the watch, or even the average during every hour of the day.

×*Q.* When you have the figure for a certain day, without reference to watches or hours, what would that indicate; the average for the day probably?

A. It ought to indicate the average of the day.

×*Q.* 73° is what you would call a warm temperature, is it not?

A. Not for a summer temperature.

×*Q.* Would you call it a usual midsummer temperature—we are not speaking now of the Gulf Stream, but of the coast waters here?

A. It is a usual and not an unusually high summer tem-

perature in the river and immediately around the coast; it is a few degrees higher than usual in the mid-Atlantic.

×*Q.* Considerably higher than it is on the coast of New England, I suppose where you get the Arctic current?

A. It is not an unusual temperature around Coney Island.

×*Q.* In your experience of these refrigerating machines you have known them to break down?

A. I have.

×*Q.* It is not an unusual experience?

A. It is not.

×*Q.* And you have known them to break down without any visible or evident reason for doing so, have you not?

A. I have.

×*Q.* And you have known them to break down even when all proper attention to cleaning and to blowing off gas such as you have mentioned as been attended to?

A. I have.

×*Q.* There are various latent defects in all machinery which cannot be counted upon or foreseen?

A. There are.

×*Q.* As you have stated that the working of these machines is more laborious, more is expected of them, with the warm temperature of the water, than with the cold, such a breakdown might be more to be expected under those conditions than under the cold conditions?

A. Such possibilities exist.

×*Q.* Did you speak of 15° as a proper temperature for the brine before or after the meat was put in?

A. Before the meat is put in, and not a long time after the meat is put in; because the temperature of the brine does not change so very quickly if the walls and ceilings and floor of the room have been properly cooled before putting the meat in.

×*Q.* The meat, as you have stated, brings up the temperature a certain amount, from its own heat?

A. It brings up the temperature of the air in the room.

×*Q.* You have said that the ordinary difference when at

sea between the temperature of the brine and the temperature of the room is something like 15° or thereabouts?

A. About that.

× *Q.* So that the ordinary and proper temperature of the meat room itself would be from 30 to 32 or 33° about?

A. About that.

RE-DIRECT EXAMINATION.

By MR. CHEYNEY:

RDQ. Do you know the average summer temperature of the Croton water?

A. It varies from 70 to 78°.

RDQ. Upon the question of brine, what is the character of brine for holding or retaining cold; does it hold it, or does it give it off readily?

A. A brine holds a large quantity of cold and it takes quite some time to expend this cold out of it.

RDQ. It is employed in refrigerating for that reason, is it not, because it does retain the cold?

A. It is.

RDQ. What is the proper temperature, if you know, of the meat room before any meat is placed in it?

A. It is usual to chill the room down to 25 and 20° in order to have a large amount of cold stored up in the brine and in the walls and ceilings and floor of the room, and in this way to help the labor which is thrown upon the machine when the meat is put in.

RDQ. In other words, if the room is not properly chilled before the meat is placed in it, the refrigerating machinery has not only the work of chilling the meat and keeping the meat cold, but also of cooling the room; is that what I understand you to say?

A. That is it.

RDQ. During what period of the voyage is the greatest work imposed upon refrigerating machinery?

A. Immediately after the meat is put into the room.

RDQ. Why is that?

A. Because it is necessary to open the room while the meat is placed in the room, and this warms it up. Also the meat is generally not, when it is put into the room, of the temperature at which one wants to keep it, that is, at a temperature of 30 or 32°, but at a somewhat higher temperature, and it takes considerable work to bring the meat down to the lower temperature.

RDQ. That extends over a period of how many days, on an average?

A. A day or two.

RE-CROSS EXAMINATION.

By MR. PAUL:

R×Q. Isn't 19° frequently the temperature of the brine?

A. It is also quite frequently the temperature of the brine.

R×Q. The 15° that you give would be rather the lowest limit, would it not?

A. No. Often 12° is employed.

R×Q. But 19° would not be unusual?

A. 19° would not be unusual.

AUGUST J. ROSSI, being duly sworn and examined as a witness for the libellants, testifies:

By MR. CHEYNEY:

Q. Do you live in New York City?

A. Yes.

Q. Your business is what?

A. Consulting civil and mining engineer.

Q. Are you familiar with refrigerating machines?

A. I have been concerned exclusively with ice refrigeration from 1877 down to 1889, and I am the inventor of some ice machines of which C. H. Delavergne & Co. have been

the licensees for all that time ; the patent is dated from 1880, and another one is from 1886.

Q. You have given your attention to ice refrigerating machinery for a number of years past?

A. I have ; I have put up machines of different sizes from 50 tons down to 6 tons in different parts of the United States, and I was chief engineer of that company which was formed under my patent for that time.

Q. Are you familiar with the transportation of meat by means of cold storage rooms upon transatlantic vessels?

A. I have made a special study of that very subject and have written a number of articles which have been quoted by scientific papers on the subject, giving all the European practice in Germany, France and England on the subject—articles which have appeared in different papers which I could quote to you.

Q. On the Fourth of July, 1894, the steamship "Southwark" loaded a shipment of 920 quarters of beef, shipped by parties in Philadelphia, consigned to Liverpool. The refrigerating machinery was working from 24 to 48 hours prior to the time of the departure of the vessel from her dock. At the time the vessel sailed the temperature in the commercial room in which the beef was stored was from 38 to 42°, the ship's log showing it to have been the latter figure. Shortly after leaving the dock, within an hour or two, there was an accident to the refrigerating machinery, which has been described by the chief engineer as follows :

"The bonnet on top of the condenser for the refrigerating machine for the commercial box started to leak badly before we got to Reedy Island, and with the heat of the room and the smell of ammonia, it was a difficult matter to get it shut off and the condenser pumped out. As soon as I got it shut off I put the ship's machine on the commercial box. After getting the new joint made on the 5th, and shortly after starting the machine, the after compression pump gave a heavy knock. I exhausted the pump and opened it out, and found both connecting rod bolts broken, connecting rod bent, and compres-

sion piston cracked. I then disconnected the engines and worked with a single engine and kept the two boxes going. On the 6th, after connecting the engine, I found the crank shaft was bent, and it was very difficult to straighten it. On the 8th I had it connected, and it has worked fairly well since. The temperature of the box was 42° when we left Philadelphia, and I was unable to get it below that until the 7th. Since then the temperature has gradually decreased to 32°."

Assuming that the temperature of the inflowing water used in the condenser was 73°, I wish you would state whether in your opinion the accident which is described in the report of the engineer could or could not have been caused by the temperature of the water being, as it was, at 73°?

(Objected to as not covering fully the facts.)

A. In no way at all. A temperature of 73 or even 75° is the regular temperature which I have observed many and many a time during such months as June, July and August in New York, using simply the water from the Croton or even the water from the river. I had an ammonia machine at the Delavergne's lately for certain experiments, in which the temperature of the water as it was furnished to me was 76°, and I have run a machine with 90 and 95° Fah. in Texas; and we have machines on board some of the steamers going to Rio Janeiro. I have a log from the "Allianca" that the temperature in the machine was 80 or 82, and 83 and even 85° of water. We had a machine in Calcutta with a temperature as high as 100° Fah., and have been running there. Of course, I don't take that as the temperature of water, but I mean to say generally in the ice machine business it is a practice to calculate that your temperature of water, unless otherwise specified, will be in the neighborhood of 70 to 75°, and your machine is regulated on that, with a possibility of overcoming any other temperature within 20°, above which you might meet in different parts of the world where the machine may be put up.

Q. What is the class of machine which is used generally in the transatlantic meat trade?

A. They have been using air machines, using ammonia machines, carbonic acid machines.

Q. What is the usual one?

A. The ammonia machine is very largely used.

Q. And the rooms are cooled by what means?

A. Most generally by circulation of brine. On land they use direct expansion of the ammonia in the pipe, but on ships they mostly exclude this.

Q. Why is brine used on shipboard?

A. Used on shipboard more especially for this reason: There is quite a difference of opinion among technical people about the advantage of one system over the other, but the advantage of brine for a vessel is this, that as you have to prepare your brine and bring it to a very low temperature before you put the contents of the room in the room itself, the brine being brought down to a very low temperature, acts as a sort of figurative fly-wheel, furnishing cold when any accident may happen to the machine, and thus allowing a certain lapse of time, say even twelve hours, for making repairs, without endangering the contents of the room. And that is the reason why, even in cold storage, it has been very frequently used, although it requires a preparation of twenty-four to forty-eight hours in bringing down the brine to a certain low temperature, in order to make it fit to take care of the room and its contents at a certain temperature.

Q. Assuming that the temperature of the brine which is flowing from the refrigerating into the meat room on the day the vessel sailed was 40°, please state whether or not, in your opinion, that was a proper temperature for the brine to have been?

A. For the inflowing brine? Not at all. The practice is to have a temperature of 20° in the inflowing brine and 25 to 26° coming back to the refrigerator to be cooled again; and that corresponds to the temperature of the room of about 34 to 35°; the room always being calculated in capacity

with a given amount of brine and given capacity of machinery for refrigeration.

Q. What does that temperature of 40° in the brine indicate, if anything, so far as the working of the machine is concerned?

A. If you could give me the pressure in the ammonia corresponding to that I could tell.

Q. I simply want to know what that indicates: whether the machine is working properly or not?

A. Forty degrees in the brine in any case the temperature of the liquid coming into the room in order to cool the contents of the box was considerably too high, since when you want to cool anything, meat or any substance whatever it may be, the temperature must be so low in the room as to admit an exchange of temperature between the object that you put in the box and the air of the room.

Q. So far as the working of the refrigerating machine itself is concerned, what does the high temperature of the incoming brine indicate?

A. It shows that the machine was not working in proper order in order to take care of the meat room; that is to say, that you could not expect, with such a temperature of the brine, to keep the room and the contents of the room in general at the proper temperature. It was considerably too high.

Q. And you say it indicates the machine was not working properly?

A. Of course it may come either from the room not having been prepared properly in order to receive the contents—that is to say, the room wasn't cooled at all before the contents were put in, or, if it had been cooled properly, that the machine was not working at all in proper shape; and this may be due to several causes, which an examination of the temperature and pressure corresponding may indicate to a technical man.

Q. How long should the refrigerating machine be working upon the meat box before taking in any meat in order to reduce it to the proper temperature?

A. My practice is always 48 hours whenever I have to do it; and the admitted practice is not less than 24 hours, especially if the machine has not been running before. Supposing the machine had been running previously, then it simply would have been discharged of the contents of meat; then all the wall and partitions and pipe are in a low temperature. If in such a room you were going to introduce meat 24 hours would be sufficient in order to bring the air and contents and installation and wall to the desirable temperature. But if the machine was a new box to be used to put meat in, 48 hours would not be any too much to bring the temperature of the room to 25 or 26°, which would be a proper temperature in order to introduce meat in it.

Q. The temperature of the room, as I understand it, before the meat is introduced, should be lower than that which is necessary to maintain afterwards in order to take care of the meat?

A. About 10° lower.

Q. Why?

A. Because when the meat is brought into a refrigerator like that, of course the refrigerator is opened; and in order to handle the meat and by all the work necessary to put the meat in the proper places in the different shelves and hooks, necessarily the room gets hot by the influx of air from the outside. In consequence of that, if the temperature is already at the very margin which would be safe for meat, say 34 or 35°, the introduction of that warm air is going to warm not only the room, but the meat introduced, and bring the temperature to a temperature which might be detrimental. But if the room were at a low temperature, 25 or 26°, it might rise 10, or 15, or 20° while the meat is put in, and immediately, as soon as the door is closed, the machine, taking all the contents of the box, will bring it down rapidly within a few hours to a temperature at which there is no danger possible for contamination of the meat by different accidents.

Q. Suppose after this meat was loaded, at the time the vessel left the dock, when the temperature of the incoming

brine was 40°, the pressure on the refrigerator gauge was 40 pounds, what would that indicate, so far as the working of the machine generally is concerned, if anything?

(Objected to, as it does not appear that the temperatures mentioned were taken at the time the meat was put into the refrigerator.)

A. Those two figures don't tally together. At a 40 pound pressure there should have been a temperature corresponding of 27 or 28 ° Fah. in the brine.

Q. What does that indicate then?

A. That indicates, according to me, if I had to examine the thing carefully—but just being asked this way, with my experience I should say it showed that the machine lacked ammonia, that ammonia was deficient in the plant, and that consequently when the gas ammonia worked in the condenser it didn't free enough liquid by condensotion in the bottom of the condenser to prevent the return of the gases from the condenser to the refrigerator, and consequently a part of the pressure of the condenser went in the refrigerator, increasing the pressure in the refrigerator above the figure which naturally would correspond to the temperature. That is to say, I should say from my own experience, if I had observed what you had given to me, I would certainly add ammonia in the plant.

Q. You think that shows a deficency in amount of ammonia?

A. Yes; or it can come from an undue heat during the compression in the gas pump, which may be due to the fact of the friction of the piston in the cylinder, to the bad working of a valve, to the state in which was the condensor tube—it might have been dirty from the preceding voyage, or whatever it might be; or from some other cause. And even if the machine had been idle for some time, the production of gases by the decomposition of ammonia, such as hydrogen and nitrogen, necessarily when they would be taken up by the piston, and not being condensible in the liquid state would

form in the condenser, a pressure above that which ammonia would have shown.

Q. Suppose at the time the vessel left the dock, while the temperature of the condensing water was 73° the pressure on the condensor gauge was 210 lbs., please state whether or not that pressure was greater or less than it shouldhave been, or the proper mount?

A. 210 lbs. for 73° was absolutely abnormal. At that temperature 140 lbs would be the theoretical pressure of ammonia, but I wou'd say that the temperature given here—to be fair and state it as it should be in a case like this—this temperature of 72° inlet water may correspond to a little above, but allowing 10°, which is an immense allowance in such a case, it would dispose of a limited amount of condensing water, which you have only to pump in the condenser—allowing that the temperature of the outflowing water of the condenser should be 82°, the pressure of 155 lbs. would have been all that you should have had on the condenser, and not 210.

Q. What would be the cause of the undue pressure on the condenser?

A. It may come either from the gas in the condenser due to the decomposition of ammonia, which should have been blown out by special apparatus.

Q. In other words, it was due to the same cause that led to the increased pressure on the refrigerator gauge?

A. To the same cause that led to the increased pressure on the refrigerator gauge, and the fact that the condensation of heat from the inside to the outside of the condenser was not proper, on account of the dirt getting into the tube of the condenser, even oil—I have had such a thing as that happen to me; that is not a long work, a couple of hours will do it. Clean the tube with some soda and a brush in order to relieve the tube from the coating of dirt or oily substance which may be carried with the water.

Q. Is it necessary to frequently clean the tubes or not?

A. Whenever a machine runs—of course, it depends on

the attention which the engineer gives to the state of his machine.

Q. Does the working of the machine indicate whether it requires it or not?

A. Yes; certainly. I had a case like that. The pressure ran up immediately 50 lbs. above what it should have been. My attention was called to it, and I looked for the trouble first in the pump. Found the pump working all right. I took off the valve, examined the valve. It only took a half an hour or so. I found the pump in proper order. I looked at the condenser, and in putting my finger in the tube I found the tube coated with grease; and then, of course, in that case I simply took a pound or two of lye and emptied the condenser from the water, poured it through the tube and started the machinery. It took me about an hour or an hour and a half to get rid of it. And being warned in my practice whenever I notice any undue pressure, and after having satisfied myself it was not caused by an imperfect working of the valve—which is a very important thing too—I always look at the state of the condenser tube. The importance of the state of the valve is this: that a machine may have a full capacity to produce a certain amount of cold, it may be in all respects in good order, and still, on account of a valve failing to work, for instance on account of some dirt, or some particles of packing having got into the piston, not coming to its seat, the machine may not do 40% of its work; and even if the compresser, valve does not happen to discharge the gas in the condenser, you may knock your piston to pieces.

CROSS EXAMINATION.

By MR. PAUL:

×*Q.* All that has occurred here might come from that?

A. From an engineer not being careful about his machine, not knowing anything about an ice machine, which is frequently the case, and not having put up the machine in proper order before starting. They may come from that,

and some of the accidents mentioned, according to me, come from an absolute carelessness.

×*Q.* And some of them might come, notwithstanding the utmost care?

A. No; because as soon as you notice that by your increase of pressure you should attend to your machine.

×*Q.* The higher the temperature of the circulating water the more work is pnt upon the machine?

A. Certainly.

×*Q.* And when a break occurs, it is more likely, other things being equal, to occur when the temperature of the water is high than when it is low?

A. Not necessarily; because those ice machines are tested at 400 pounds pressure through the whole system.

×*Q.* That, however, merely shows that they ought to stand this high temperature without injury. But if they work harder with the higher temperature there is more chance of breakage then than when they work less hard?

A. That is so, if the pressure rises gradually it would be so; but the pressure should not.

×*Q.* There are defects in all machinery that cannot always be foreseen beforehand, are there not?

A. Yes; certainly.

×*Q.* And there is the weak point sometimes in machinery, the weak spot in machinery, which cannot always be detected, is there not?

A. I don't know about that; the only weak point about a machine after it has been tested is a joint, and a joint can be attended to, or an imperfect construction of the machine, or an absolute deficiency in the proper working—the joint can always be attended to.

×*Q.* But even machines that have been properly tested have sometimes shown a weakness afterwards, without any apparent cause; that is so?

A. No; they have shown those defects, but not without any apparent cause. I say there is always a cause for it which can be detected by somebody who knows about ice machines.

×*Q.* And detected before it occurs, do you mean?

A. No, not before it occurs; afterwards surely; before you have any trouble you can detect it.

×*Q.* You say that those machines never break down and never get out of order except for troubles that might have been observed before hand; do I understand you to go so far?

A. No, I don't want to say that. I say when a trouble comes, it can always be detected by someone who knows his business.

×*Q.* And ascribed to what cause, after the event?

A. Certainly.

×*Q.* There being certain weaknesses and defects that you can't always foresee, until they do come out, it is more likely that trouble would come from them in the hot temperature of the water then in the colder temperature?

A. What do you call hot temperature, 72°? That is not at all a hot temperature for an ice machine.

×*Q.* But they have to work harder in that temperature than they do in a lower temperature?

A. Except if you have well water or specially cold spring water, which is exceptional. Generally I would be very well satisfied in any machine to have a regular temperature of 72 or 75° in the condenser, if I could secure it.

×*Q.* But they have to work harder?

A. No; they are intended to work harder at that temperature.

×*Q.* Do they work harder?

A. Surely; they don't work harder, you burn more coal, that is all.

×*Q.* And your compressor is more active and more violent than at a lower temperature?

A. You must understand one thing, when you say 72°, corresponding to a pressure we will say of 140 lbs. in ammonia it should have been—you must not imagine that it was 140 lbs on all your system—not at all—you have only on the piston an average pressure. You take your gas which has a pressure of 40 pounds and you compress it to a pressure of

140, so it is only at a certain moment of the stroke that you get that pressure, but not at all through the whole stroke. Although you are perfectly right on the general principle that the higher the temperature the greater the pressure of the gas, the greater the strain; though it is so, it is not at all in proportion to the temperature of the water directly or to the pressure of the condenser. That is to say, for instance, a temperature of 72 to 80° in an ice machine certainly strictly speaking imposes more work on the machine, but it is not at all in the proportion of 72 to 80, or say 70 to 80, which would be 7/8; it is not at all in that proportion. That is what I mean.

×*Q*. I understand you to say that you have got to work the machine harder in all its parts when the circulating water is of a high temperature than when it is a low temperature?

A. That I say, strictly speaking, yes; but not so far as the strain on the machine is concerned, because the strain on the machine has been calculated to be five or six or ten times whatever that extra strain might be. Exactly like when you use an iron beam, if that is only working at 1/5 or 1/6 of its working strain. That is the same thing in an ice machine. The extra work put on the machine is no strain in the proper sense of the word. So, strictly speaking, as you said, it means anything that requires a little more push, but it is so perfectly insignificant—only if you should reach extravagant pressure could there be any danger to the machine.

×*Q*. That is true if the machine had no defect, but if there is a weak place or a defect it will be more apt to manifest itself at that point that if the water was cooler?

A. Surely that cannot be contested.

×*Q*. And you cannot pretend to say when a machine breaks down, unless you have examined it, whether it was a defect which could have been foreseen or not?

A. Of course, without seeing the machine, I cannot.

×*Q*. And all that you have given us, with perfect clearness and fulness, are the various reasons which might have been causes for the breaking of this machine, as described?

A. Yes, sir; based on the pressure given to me and the temperature furnished by the log, and the temperature of the brine.

×*Q.* When the machine has had to stop for a certain period of time, that, of course, would increase rapidly the temperature of the brine?

A. No, not rapidly; because the amount of brine in the piping is so considerable, amounting to several tons, that before it can lose a part of its temperature and allow the contents of the room to rise, it will take—not a very long time—but, for instance, there have been machines stopping all night, for twelve hours, and keeping on the next morning, during repairs; and this is one of the advantages, as I pointed out in the use of the brine system; if you get your brine very low in starting, and if your machine is working properly, even if it were not gaining on the brine and lowering the temperature of that brine—however the temperature of the brine being very low, say at 25 or 26°, before it would reach to 70° Fah. several hours might elapse, allowing for any ordinary repair to a machine such as unfortunately happens to a steam engine or to any kind of machinery.

×*Q.* Where an accident has happened to a machine the pressure might run up to a very high point just prior to the break when it was working abnormally, might it not?

A. That may be so; it depends.

×*Q.* If the pressure is taken at several times during the day before the break and then after the break when it is repaired, the average might be a pretty high pressure, without showing, however, the pressure at any particular time?

A. Certainly.

×*Q.* And you will have to know the pressure at a particular time in order to say exactly what the conditions were at that particular time?

A. Yes; but I understood the pressure was given to me at a particular time; that is the way it was given to me.

×*Q.* But you must know the particular time at which

the pressure and temperature of the brine and the other conditions coincide, in order to give your opinion?

A. Yes.

×*Q.* If you have the average pressure of the whole day for all three it wouldn't indicate very much, it wouldn't give you much idea of what the state of things was?

A. If I had only the average of the day I could not tell certainly what was the pressure at a particular time, no.

×*Q.* What is the hardest time for the meat box? It is just after the meat goes in, is it not?

A. Certainly. It depends. I have seen meat put in a refrigerator room and the temperature of the refrigerator room going down immediately, because the meat was, as it is most generally in loading meat, in my experience of what I have seen and what I have read—when meat is loaded it comes out of a refrigerating place or car; in the car it is kept at 36 and 37°, and in this cold storage place they keep the meat at between 33 and 32° in a room of 34°. If you take meat from such a place as that and transport it to the ship, suppose the distance is not very long—which I don't know in this case—if a transportation of a couple of hours, it would not make much difference in the temperature of the meat,—it might rise two or three degrees in transferring. That is, if you put it in a room very cold, 25, or 26, or even 20°, as, according to me, it should have been, then, in that case, the temperature of the brine being so low, before the meat can actually rise in temperature it would be immediately seized by the temperature of the room and brought down very rapidly within six, or possibly twelve, hours, to the temperature at which it is safe to keep meat.

×*Q.* If the meat is brought in hot weather, in a temperature which is rather high, the work on the machine would be severe immediately after putting it in in order to bring it down?

A. Yes, I mean to say that. But when you transport meat, as I have seen it done myself, it is only the surface of the meal which may show action by the heat of the air, and it

is very limited, because the meat is a very bad conductor of heat; it has about ¾ of the conductivity of water. So that before the heat can penetrate the meat, on account of the bad specific gravity of the meat, it requires a certain time—two or three hours I don't suppose would make very much difference in the average temperature of the whole meat, except on the surface, where you might have a little coating which would be at a higher temperature than the rest. But in that case, if the temperature of the provision room is low, it will immediately seize on that surface.

Q. But that is where the hard work comes in, because the bringing in of meat from the outer air, especially in very warm weather, does instantly cause a perceptible rise in the atmosphere which the machine has to overcome?

A. Yes.

×*Q.* It rises sometimes about 20°?

A. Not in the meat.

×*Q.* In the temperature of the room?

A. No; 10 or 15° is a good deal; generally they have an ante-room.

×*Q.* It does, really, doesn't it?

A. 10° is a good deal unless you don't take any care at all in loading the meat. 10 or 15° would be ample. The 20° you speak of refers merely to the temperature of the air in the room, and that is very quickly lowered by such a machine —it don't amount to anything much, because the air is very little, and to bring that air to the proper degree won't take but an hour or so.

×*Q.* But still, it has to work harder during that hour?

A. That don't amount to anything.

WILFRED H. FLEMING, being duly sworn and examined as a witness for the libellants, testifies:

By MR. CHEYNEY:

Q. What is your age, residence and occupation?

A. Age, forty-one; residence, New York; occupation, mechanical engineer and surveyor of refrigerating apparatus for the Insurance Company of North America.

Q. How long have you been engaged in business with the Insurance Company of North America as a surveyor?

A. For the past two years.

Q. What is the extent of your duty in connection with that employment?

A. In going on board ships fitted with the refrigerating plants and examining them. Seeing that they are in proper condition and then making reports to the company in regard to the state of the plants.

Q. Are you present or not when the cargoes of meat are loaded and placed in these meat rooms?

A. Yes, on many occasions I am present; especially in the summer time.

Q. Are you present on more occasions in summer than in winter time?

A. Yes.

Q. What is the extent of your duty in conneccion with the loading of these cargoes?

A. I examine the condition of the meats; when I say examine—not the condition of the meat—taking the temperature of the meat as it is taken from the cars and delivered to the ship's boxes. I also am in the refrigerating room where the plant is, have conversations with the chief engineer and the refrigerating engineer, and then make my reports accordingly.

Q. Are you familiar with the temperatures of the meat or commercial boxes when opened for the reception of meat and when closed?

A. Yes; I see the temperatures taken.

Q. Are they opened in your presence or not?

A. No; not often; not always.

Q. Are you present when they are closed?

A. Yes; on many occasions, especially in summer time.

Q. How many vessels or cargoes have you examined under the circumstances which you spoke of during your connection with the insurance company?

A. I have made over ninety surveys for the company during the past two years; and these surveys embrace examinations made in Baltimore, Philadelphia, New York, Boston, and Portland, Maine.

Q. Are you familiar with the construction and operation of the refrigerating machinery usually used upon the transatlantic steamers?

A. Yes.

Q. What is the process which is employed generally?

A. The process that I think is chiefly used is what is termed the brine circulating system, and using ammonia as a refrigerator, though there are other systems.

Q. Can you give me a short statement of the operation of the ammonia compression machines?

A. It is just simply a cycle of operations embraced under three headings: the compressing of the gas; the condensing of the same; and then expansion. So you see, the gas as it enters the compressor is compressed, and from there passes into the condenser, and in this condenser, composed of an iron cylinder of varying dimensions, the gas passes through tubes surrounded by water for liquifying the same; and after that the gas, or the liquid, rather, passes through into the refrigerator, cooling the brine; and that process expands it.

Q. Are you familiar with the statement of the process which is made in a book entitled "Refrigerating Machinery" by Wallis Taylor, commencing at page 22?

A. I know the work; I have read that.

Q. Is that a correct statement of the principles of operation?

A. I think it just about the same; in the book it is more clearly expressed than I could off-hand.

Q. On the 4th of July, 1894, the steamship "Southwark" loaded a shipment of 920 quarters of beef, shipped by parties in Philadelphia, consigned to Liverpool. The refrigerating machinery was working from 24 to 48 hours prior to the time of the departure of the vessel from her dock. At the time the vessel sailed the temperature in the commercial room in which the beef was stored was from 38 to 42°, the ship's log showing it to have been the latter figure. Shortly after leaving the dock, within an hour or two, there was an accident to the refrigerating machinery, which has been described by the chief engineer as follows:

"The bonnet on the top of the condenser for the refrigerating machine for the commercial box started to leak badly before we got to Reedy Island, and, with the heat of the room and the smell of ammonia, it was a difficult matter to get it shut off and the condenser pumped out. As soon as I got it shut off I put the ship's machine on the commercial box. After getting the new joint made on the 5th, and shortly after starting the machine, the after compression pump gave a heavy knock. I exhausted the pump and opened it out, and found both connecting rod bolts broken, connecting rod bent, and compression piston cracked. I then disconnected the engines and worked with a single engine and kept the two boxes going. On the 6th, after connecting the engine, I found the crank shaft was bent, and it was very difficult to straighten it. On the 8th I had it connected and it has worked fairly well since. The temperature of the box was 42° when we left Philadelphia, and I was unable to get it below that until the 7th. Since then the temperature has gradually decreased to 32°."

Assuming that the temperature of the inflowing water used in the condenser was 73°, I wish you would state whether in your opinion the accident which is described in the report of the engineer could or could not have been

caused by the temperature of the water, being, as it was, at 73°?

(Objected to as not covering fully the facts.)

A. That temperature of the water 73° is not at all high; and I should very much doubt if that would have caused the breakdown of the machinery.

Q. Are you familiar with the temperature of the water in summer weather in the Atlantic ports?

A. Yes; from records that I have taken during the past two summers.

Q. Is or is not a temperature of 73° unusual?

A. No; it is not, because I have had temperatures in Baltimore as high as 80 and 78° is quite frequent.

Q. Were those temperatures taken by you at the time you were surveying vessels loaded with meat?

A. Yes.

Q. Was there or not any trouble with the refrigerating machinery of those vessels using incoming water at the temperature of 78 or 80°?

A. They were running the machine somewhat higher than what you would do if the water was cooler. The pressure in the condenser was also higher.

Q. Do you know what the temperature of the Gulf Stream is in summer weather?

A. It ranges from 70 to 72 to 80°.

Q. Do you know whether or not other vessels during the month of July and about the Fourth of July, 1894, carried cargoes of meat without trouble?

A. Yes; there were quite a number of vessels. I should have to look through my records, though, to give you the names.

Q. The copy of the log book which has been produced shows that on July 4, 1894, the day of sailing, and also on the 5th and 6th, the temperature of the incoming brine or the brine flowing into the commercial box to be 40°. Please state whether or not that was a proper temperature for the brine at that time?

A. The temperature is too high altogether.

Q. What should the temperature have been?

A. The temperature of the brine should have been at that time of the year not less than 12^0.

Q. Not less than 12^0 nor more than how much?

A. Nor more than 18^0 to 20^0.

A. What does a temperature of 40^0 of the incoming brine signify so far as the working of the machinery is concerned?

A. It would show that the machine was not doing its work.

Q. What, in your opinion, was the cause of the machine not doing its work properly as evidenced by the high temperature of the incoming brine?

(Objected to.)

A. It might have been caused by a dirty condition of the condenser (by that I mean the tubes being furred); also, by the fact of there being permanent gases in the system; and, another reason, not having a full charge of ammonia gas.

Q. When you speak of the coils of the condenser being furred, what do you mean?

A. Covered with a scale or a deposit.

Q. Is that on the exterior or interior?

A. Both in the inside and on the outside.

Q. Are the causes which you have suggested causes of trouble which are commonly known or not? In other words, is the furring of the condenser pipe something which is commonly known to engineers in charge of these plants?

A. That occurs quite frequently.

Q. Are or not these machines so constructed that the trouble can be remedied?

A. Yes; there are arrangements made for remedying that.

Q. What is the method of remedying it?

A. Taking off the condenser doors or covers and scaling or cleaning the tubes.

Q. And that, I suppose, should be done before the

vessel takes on any cargo of that character if there is any evidence of any trouble of that kind?

A. Yes; it is usually done every six months.

Q. So far as the gases are concerned—the non-condensible gases—is there any method provided for drawing those off of the machinery or not?

A. You can take those gases right out of the system; yes.

Q. How is that done?

A. By disconnecting the compressor.

Q. And so far as the insufficient charge of ammonia is concerned, would that or not be evident to a person skilled in the charge of such machinery?

A. It would be shown to him by the mere fact of the brine not being cold enough, or cool, to do the work.

Q. Then, I understand you to testify the fact that the brine was of such a high temperature would indicate that one of these three causes existed—either that the condenser coils were dirty, that there were non-condensible gases in the refrigerating plant, or that there was an insufficient charge of ammonia; is that correct?

A. Yes.

Q. At the same time the temperature of the incoming brine on July 4th was 40°, the pressure on the refrigerator gauge was 40 pounds. Kindly state whether or not in your opinion that was a proper pressure to have existed at that time upon the refrigerator gauge?

A. It was an excessive pressure; it should have been about 30 pounds.

Q. Does that pressure depend upon the temperature of the incoming brine or upon what?

A. Depending upon the temperature of the brine.

Q. Suppose the temperature of the incoming brine is 21°, what would the pressure be?

A. About 24°.

Q. With the temperature of the incoming water at 73°,

please state whether or not a pressure of 210 pounds on the condenser gauge is a proper pressure or not?

A. No; that is an excessive pressure.

Q. What would a proper pressure have been?

A. The incoming water, at a temperature of say 73°, the condensing pressure would be 175°.

A. I wish you would state fully what in your opinion was the cause of the break down of this machinery described in the report of the chief engineer?

(Objected to, as the witness cannot possibly tell more than a hypothesis.)

A. In my opinion the cause leading to the break down of the machinery was that the machine was not, in the first place, in an efficient condition.

Q. In what respect in your opinion was it inefficient?

A. The high condenser pressure, as well as the temperature of the brine.

Q. They are results. What in your opinion was the cause of those two results?

A. Either one of those three reasons that I have already given, or may be a combination of the three.

Q. That is, the lack of a sufficient quantity or charge of ammonia; the furring of the condenser coils, or the existence of permanent gases in the plant?

A. Yes.

Q. What is the temperature at which the air in these rooms is usually maintained during the voyage?

A. The proper temperature that the beef chambers should be kept at ranges from 30 to 31°.

Q. What is the usual opening temperature of the room; that is, the temperature of the room when it is opened for the reception of the meat?

A. In summer time it is as well to keep the opening temperature not over 20°. In winter time, of course, you can run up to 25 or 26°; but these are the temperatures that I have found in my practice to have been the usual.

Q. How many days or during what period prior to the

opening of the commercial box or meat chamber must the refrigerating machinery have been in operation in order to reduce the temperature of the room to the degree you have mentioned; that is, 20°?

A. That depends upon the state of the weather and the efficiency of the machine.

Q. In ordinary summer weather in July?

A. From three to four days.

Q. Do you mean by that if the room has been at all cooled before, or to cool a new room?

A. To cool a new room.

Q. You are familiar with the general transatlantic shipping trade?

A. I am.

Q. Generally these rooms are cooled going eastward only, are they not?

A. Yes.

Q. Coming westward how are they used?

A. As places for cargo.

Q. Ordinary cargo?

A. Ordinary cargo.

Q. In other words, the refrigerating machinery is not in use during the western voyage?

A. No, sir.

Q. That is, so far as the commercial boxes are concerned?

A. Yes, sir.

Q. After you have opened the room of a temperature of 20° and placed a cargo of meat in it, how much rise usually is there in the temperature of that room in summer time, in July weather?

A. It will run up to 20° above that.

Q. That would make a temperature of about 40°?

A. Yes.

Q. That is what is known as the closing temperature, is it not?

A. Known as the closing temperature.

Q. How long for a refrigerating machine in proper con-

dition is required to reduce the temperature of the meat chamber to the proper degree, that is about 31°, how long after the chamber is closed under the usual conditions in summer time?

A. Not more than twelve hours.

Q. That is with the inflowing brine at what temperature?

A. Inflowing brine of 15 or 20°.

Q. What would be the effect of the temperature of the inflowing brine being 40° ; would it have any effect at all?

A. No.

Q. Are you familiar with the manner in which the engineers' log books on transatlantic steamers carrying meat are kept?

A. Yes ; from the fact of having seen so many different log books and having had conversations with the chief engineers.

Q. Do these log books usually show the opening and closing temperature of the room or not?

A. Yes ; in all cases. They will also show, too, the date and time when the machines were started to cool the chambers preparatory to receiving the shipment.

Q. In your opinion would or would it not have been possible for the temperature of the meat chamber upon this vessel to have been reduced to a proper degree by the refrigerating machinery being in operation for 48 hours, assuming that the meat chamber had not been used for that purpose immediately prior thereto?

A. You want to know whether 48 hours was too short a time?

Q. Yes.

A. Take the conditions prevailing at that time when this shipment was made, in my opinion 48 hours was too short a time to prepare the chamber for receiving a shipment and to have the chamber at the proper satisfactory temperature.

Q. Having the closing temperature of the room at say 40° and having been in operation so short a period that the room itself was not thoroughly chilled and cooled, what would

be the effect, so far as the operation of the machinery is concerned? In other words, would it impose a greater load than ordinary or not?

A. Yes; they would be working the plant at a higher rate.

Q. Would that be a safe rate to operate the plant or not?

A. It would be putting unnecessary conditions on the plant.

Q. Would that or not impose any risk of the machine breaking down?

A. No.

Q. It would not have done that?

A. No.

Q. What would be the effect upon the machinery? Would it require to operate more rapidly or what?

A. At a higher speed.

Q. Assuming that the ordinary summer weather prevailed at this time, and assuming that the refrigerating machinery had not been in operation a sufficient time to reduce the temperature of the room to the proper degree before putting the cargo in, what would be the effect of that upon the operation of the machinery after the cargo was placed in it?

A. It would put more work on to the machine.

Q. And consequently more liability to break down?

A. Certainly, more liability to break down.

Q. Do you or not consider it safe for the engineer to take the risk to do that?

A. I would consider that it would be a very risky business to attempt to do that under the conditions prevailing at the time.

Q. Do you know the plant which was carried upon the "Southwark" at that time? Have you ever seen it?

A. I have seen it, yes.

Q. Where is it at the present time?

A. It is on the steamer "Rhynland."

Q. That is one of the American Line boats?

A. Sailing from Philadelphia to Liverpool, yes.

Q. Do you know how many cargoes of beef the "Rhynland" carries at the present time; that is, her maximum carrying capacity?

A. I think it is about 1400 to 1500 quarters.

Q. How many accidents have you personally known to refrigerating machinery used in the transatlantic trade?

A. That have come under my own notice during the past two years?

Q. Yes, or whatever time you have been connected with the insurance company?

A. Four.

Q. What have been the causes of those accidents?

A. On one vessel it was the breaking of the discharge valve of the compressor; on another, the leaking of the ammonia gas into the condenser.

Q. Through the bonnet?

A. No; through the tubes in the condenser, and then the gas was dissoluble in water and pumped overboard, and they lost the entire charge; and another one where a leather washer got fixed in a suction valve of the compressor, and the engineers in charge were unable to detect it; and the fourth was a break down of the fan used for circulating the cold air through the meat chambers.

Q. That was really not connected with the refrigerating machinery?

A. Not connected with the refrigerating machinery, but a part of the system.

Q. But no part of the machinery for refrigeration?

A. No.

Q. Have you ever known of an accident similar to this one which occurred on the steamship "Southwark?"

A. No; I have not.

Q. Generally, what is the extent of the injury which is described in the report of the chief engineer; is it a slight accident or a serious one?

A. I should call it a serious accident, because, for the time being, it totally disabled his machine.

Q. Did it not disable a considerable portion of his machine?

A. It did; yes.

Q. And would or would not any ordinary difficulty with the machinery have caused the injuries which he has described in his report, for instance, the breaking of the connecting rod bolts, bending the connecting rod, or the cracking of the compression piston; would it be anything slight or a serious difficulty that would cause that injury?

A. That is a serious difficulty, I should call it.

Q. Do you know Mr. Gilbert Paul, who was the engineer in charge of the machinery on the "Southwark" at that time?

A. I have met him.

Q. Where did you meet him?

A. I met him on board the "Armenian" of the Leyland Line, at the time of making a survey of the refrigerating machinery on board that vessel; he was the second engineer there.

Q. When was that?

A. That was about the 12th of April.

Q. Did you have any conversation with him about this accident?

A. I spoke to him about it, yes; but he was exceedingly uncommunicative.

Q. Did you ask him for any information as to the manner in which the accident occurred?

A. Yes, I did; but he would not give me any information at all.

Q. You say he refused to give you any information?

A. Yes.

Q. How did you come to speak to him about this matter?

(Claimant's counsel objects to all this as hearsay and irrelevant.)

A. Knowing that he was in this case, and that I had been called in the matter, and, I think, if I remember rightly,

that in some conversation with you I said that when in Boston if the vessel was in there, I would possibly come across him.

Q. Did or did you not see Mr. Paul at my suggestion or request?

A. Yes; I did.

Q. Do you know Mr. Rossi and Mr. Roelker, who have testified this morning in this case?

A. I do; yes, sir.

Q. What is their reputation in this city so far as ice making and refrigerating machinery is concerned?

A. They both hold a high position, Mr. Roelker especially, in regard to government work; he is the advocate of the dense air system; he manufactures the machines; they use those machines on the navy ships.

CROSS EXAMINATION.

By MR. PAUL:

×*Q.* What is your exact duty with reference to these refrigerating machines; to inspect in any way the machines themselves, or merely to notice the conditions existing in the commercial box and the meat, etc.?

A. To inspect the machines themselves.

×*Q.* As well as the other?

A. Yes.

×*Q.* And I think you said that you had inspected ninety of these machines in the last two years?

A. Yes, sir.

By MR. CHEYNEY:

×*Q.* That is, ninety different machines or different vessels?

A. The ninety would cover ninety surveys; I make a survey twice in a year; I don't go down on the ships all the time.

By MR. PAUL:

×*Q.* So that the ninety surveys would cover about forty-five vessels, not more than that?

A. No, it wouldn't cover so many as forty-five ; it would cover about thirty vessels.

By Mr. Cheyney :

×*Q.* I wish you would state the vessels of what lines you have inspected ?

A. The American Line sailing from New York to Southampton ; the American Line from Philadelphia to Liverpool ; the Johnson Line from Baltimore to Liverpool ; the Atlantic Transport Line from New York to London ; the Cunard Line from Boston to Liverpool ; the Leyland Line from Boston to Liverpool, and four or five other ships that are fitted with refrigeration belonging to different lines, one vessel of a line ; for instance, a boat called the "Iona" of the Thomson Line ; she is the only one fitted with them.

By Mr. Paul :

×*Q.* Does that cover all the lines that carry meats in refrigerators, or do other lines that you do not inspect carry also ?

A. Yes, those that I have mentioned cover the lines that the Insurance Company of North America insure.

×*Q.* But there are other lines ?

A. Yes, sir.

×*Q.* A number of them ?

A. The White Star, the Warren Lines.

×*Q.* The Gorman Lines ?

A. No ; they used to carry meat, but owing to the Government they don't.

×*Q.* And out of those thirty vessels whose plants you have examined in the last three years you only know of four occasions on which they have had a breakdown.

A. Yes, sir.

×*Q.* Do you mean to say that that covers the whole time of the two years or only the occasions on which you have made surveys that you have met with the four breakdowns ?

A. That covers the whole time.

×*Q.* I think you have said that the hotter the circulating water the more work there is for the engine and for the refrigerating plant generally ?

A. Yes.

×*Q.* You have also said that when the meat is first put in the box there is a sudden rise of temperature there due to the putting in of the meat of some 20°?

A. Yes; dependent upon the state of the weather.

×*Q.* Therefore the hardest work and the greatest strain upon the plant comes either in hot weather or just after the meat has been put in, or when both of these things combine; does it not?

A. Yes.

×*Q.* And if there is any defect, latent or otherwise, in a machine, it would be more apt to manifest itself at th a time than at other times, would it not?

A. Naturally.

×*Q.* So that you might have, might you not, a machine working perfectly up to the time of the putting in of the meat which by reason of the increased work that it had to do afterwards showed some defect, whether that defect be a fault or otherwise; but it would show it then more likely than before the meat was put in, would it not?

A. Yes.

×*Q.* And if the meat is put in just before the vessel sails a defect in the machine might become manifest just after sailing, which could not have been noticed before the sailing, could it not, owing to the meat having been put in?

A. Yes.

×*Q.* In this description of the accident that occurred here that has been read to you, the first thing was the blowing out of the bonnet or some failure of the joint in the bonnet of the condenser, was it not?

A. Yes, sir.

×*Q.* Owing to that it was necessary to stop the machine and to let the temperature naturally go up somewhat in the brine and in the box, and when the repairs to that bonnet were made it was necessary to do much harder work by reason of that stoppage to get back again with the condenser and pump, and then followed the breakage in the pump; so

that you could say, could you not, that all that occurred there was connected with that original difficulty with the joint of the bonnet? It could naturally follow on?

A. They stopped the machinery, if I understand, till they couldn't stay in the room for the escape of gas.

×*Q.* And that several hours stop, mending the bonnet and going on again—what I want to know is whether the original break in the bonnet might not account for the subsequent trouble with the pump, owing to the necessity of pumping more vigorously afterwards to make up for the lost time?

A. No; I don't think so; because they had previously been working the machine I should judge at its utmost capacity.

×*Q.* How do you judge that?

A. Because the time is stated to be only 48 hours, and they have only got the box down to 42°.

×*Q.* You have said that 40° at the time immediately after putting the meat in is not an unusual temperature?

A. What was the temperature of the box when opened?

×*Q.* That hasn't been given here; the temperature of 42° is given either as an average for that whole day of July 4th or as at the time when the vessel left the dock, which is the sailing temperature; therefore the temperature of 42° does not apply to the opening of it, and that being the case, putting that aside, which may or may not be so, you could connect, could you not, all these injuries from the original breaking of the bonnet?

A. What led up to the cause?

×*Q.* That is another matter; but assuming that you start with the breaking of the bonnet and the stoppage which is described here, could not the disturbance of the pump and all follow from that by reason of the excessive working to make up for the temperature lost by the stoppage?

A. That leak in the bonnet should not have caused the collapse of the engine.

×*Q.* But it might have caused it, might it not?

A. It might have done so; yes.

By Mr. Cheyney:

×*Q.* At the lapse of a day after it had been repaired?

A. No; not after the lapse of a day.

By Mr. Paul:

×*Q.* You have stated certain causes which in your opinion might have caused an excessive pressure and excessive strain upon this machine. Do I understand that those are absolutely exclusive of all other causes, or merely natural causes which would occur to one? There might be others?

A. There might be others; but those would be the chief causes.

×*Q.* For instance, in the repairing of this bonnet and stopping the condenser for that purpose, it is possible for air to get in, is it not, sometimes, which, mingled with the ammonia, causes increased pressure?

A. Yes.

×*Q.* And is it not always easy when working at sea and in the atmosphere which is caused by the escape of ammonia from one of these bonnets to avoid that difficulty sometimes; isn't that so?

A. Yes.

×*Q.* So that it would be conceivable in your opinion that the presence of air in the condenser caused by the stopping to mend the bonnet might have also caused the excessive pressure which afterwards broke the pump, that is a conceivable explanation?

A. That is a conceivable explanation, but I don't think it is very likely.

×*Q.* But still you would not say positively that that might not have been the cause?

A. No.

×*Q.* The chief engineer's report says that the condenser was pumped out. When he pumps out the condenser he rids the condenser coils of ammonia, the liquid and the gaseous, so that he could repair the joint in the bonnet. To do

that he has to reverse his connection and pump the liquid ammonia out of those coils into the refrigerator coils, using the refrigerator coils as a storage place during that time. In his compression, his suction side of his compression pump, in drawing that gas out of the condenser coils, might he have drawn air through that leak?

A. Yes; but in this condenser the gas does not circulate through the coils; it circulates around the coils, and the water through the coils. In the present type of condenser, the Cuban type, the gas circulates through the coils and the water around.

×*Q.* Neglect the question of coils entirely. The leak at the joint was an ammonia leak, leaking of the open air into the bonnet; consequently, if you are going to draw the liquid ammonia off in your compression pumps from that receiver, no matter whether the space contained the liquid or gas, by the time the pump had got that pretty well drawn out, it would be liable to draw the air, because that part where the pump was drawing from was connected with the open air by the leak?

A. Yes. But I might add that after starting, having lost so much gas, is there any record where he recharged the machine?

×*Q.* No, there is no record.

A. Because if he did not do so he is going to put a heavier strain on the machine, because there is such a little charge in the plant.

×*Q.* Therefore it is a possible explanation of the breaking down of the pump that it arose or was connected with the original breaking of the bonnet joint in the way that has been stated? I think you said so?

A. Yes.

×*Q.* Is it always possible to foresee and guard against weaknesses in joints such as are required in this bonnet? Don't weaknesses occur without any cause that can be foreseen sometimes in joints of machinery?

A. Yes; but then they are guarded against by the prac-

tice of every six months or so putting an air pressure through the system, ranging from 250 to 300 lbs to the square inch to detect any defects.

×*Q.* But sometimes, from latent defect of material or something else, a weakness will develop notwithstanding?

A. Certainly.

×*Q.* So that you cannot say necessarily that where a leakage in a joint occurs at a time when the machinery has got to do its best in the way of work, that there was necessarily any neglect or omission, from that alone?

A. No.

×*Q.* Isn't it with all machinists a well known fact that joints, no matter how careful you are, will sometimes blow out?

A. Yes.

×*Q.* The indications of pressure that have been read to you from the log all show excessive working of the machine, do they not—the pressure on the refrigerator gauge and the pressure on the condenser gauge?

A. They all show that the machine was not in an efficient state.

×*Q.* They show that it was working unduly and yet not producing the results which it was intended to?

A. They do show that.

×*Q.* You have said that more than 48 hours would be required in summer to bring a normal temperature box down to the proper degree for carrying meat. Are you sure that that period is often or usually extended—that more than 48 hours is required in the quick passage of vessels back and forth?

A. From my own experience in summer time.

×*Q.* Don't the vessels frequently arrive only on Saturday or Sunday, and start their refrigerators on Monday, and go off say the following day?

A. Yes; but, then, on the other hand, they have been cooling the chambers down before they reach port.

×Q. Do you think they cool them if they carry cargo in the commercial box?

A. No; they wouldn't cool them if they had cargo; but the general practice is coming to the westward, there is little cargo, and they invariably make a practice of not putting the cargo into the commercial boxes.

×Q. Do you know the practice of the American Line in that respect?

A. On the four fast ships on the Southampton Line they would have cargo in those meat boxes; I believe that is the practice. But those on the American Line from Philadelphia they have much longer time in port as a rule than the New York ones do.

×Q. Do you know on the four vessels you have mentioned running to Southampton that more than 48 hours is usually taken to cool off the refrigerator box?

A. On those four vessels I believe they have a larger machine and that they would not probably exceed the 48 hours to cool down.

×Q. But have they not also a larger commercial box so that the ratio would be about the same?

A. What was the size of the box on the "Southwark?"

×Q. I do not remember now. Remember, also, that these big boats have four large boxes and two machines only besides a fruit compartment. So that could you necessarily say that because of the greater size of their machines they could do their work in the way of bringing down the temperature of the boxes, in any shorter time?

A. They have three machines on the large ships.

×Q. One is used only for the ship's own provisions. I am speaking only of the commercial machines?

A. I don't think the ratio is in proportion of the size of the box and the machine on these four ships as compared with the "Southwark."

×Q. The "Southwark" having only one box you think it would be more difficult to get the proper temperature than

these other vessels with the four boxes and two machines; is that correct?

A. What I wanted to express is to the effect that the machines on the "New York" and "Paris" are larger than the machine on the "Southwark," and, therefore, they could with safety work them within 48 hours to cool down the box.

×*Q.* But I ask you whether the larger size of the machines makes any difference if they have a larger amount of box surface to cool. If the ratio is maintained between the box and the machine, that would make no difference, would it?

A. That would make no difference.

×*Q.* And unless you can say that the ratio between the box and the machine on the "New York" and "Paris" is different from that on the "Southwark," you could not say that they required more or less time, could you? You must know the ratio?

A. Provided the ratio is the same.

Q. If the ratio is the same, then there ought not to be any difference, ought there?

A. No.

Re-Direct Examination.

By Mr. Cheyney:

RDQ. These refrigerating machines are supplied with the proper valves and appliances for drawing out the air which sometimes gets mixed in with the ammonia, are they not?

A. They are, yes.

RDQ. That can be done without any trouble?

A. It can.

RDQ. Do I understand you to say that if the plant was not recharged with ammonia after the leak in the condenser that the supply would have been inadequate?

A. It would have been, most decidedly.

RDQ. And would that not have probably led up to the

accident that subsequently occurred: the injury to the compression pump?

A. Yes; it would.

RDQ. Unless the plant was recharged?

A. Unless the plant was recharged to compensate itself for the loss of ammonia.

RDQ. You have said that the temperature of the brine going into the commercial box is about 12 to 18°; what is the effect on the temperature of the brine of the introduction of the cargo; does it rise in the same proportion that the temperature of the air in the room rises or not? In other words, when the temperature of the air goes up to 40° does the temperature of the brine also go up to 40°?

A. No.

RDQ. How far up does it go?

A. Taking the temperature of the brine at what degree?

RDQ. What I want to know is this: you say the temperature of the brine should be from 12 to 18°. Where you open the box with the brine at that temperature and introduce the meat into the chamber and close it up, what change has there been in the temperature of the brine during the time the box has been opened?

A. The brine should remain at the same temperature.

RDQ. The brine doesn't change at all?

A. No.

RDQ. It is the air in the room only which changes?

A. Yes.

RE-CROSS EXAMINATION.

BY MR. PAUL:

R×Q. Don't the brine get heated about 2°, some slight difference?

A. There is a slight difference.

R×Q. Did you ever examine carefully this plant on the "Southwark" which is now on the "Rhynland"?

A. Yes, I have examined it carefully; and they have made one or two alterations.

RXQ. It is one of Kilbourn's?

A. Yes.

RXQ. And those are considered good machines?

A. He has the name of turning out very good machines, especially adapted for marine purposes.

R×Q. In addition to air getting in, doesn't oil get in sometimes and cause trouble with the condensers?

A. It does, but then you have arrangements for taking out the oil, or should do so.

R×Q. But still there may be trouble in the working of the machine from that?

A. Yes.

R×Q. It may cause trouble?

A, That can be; yes, sir.

R×Q. And without the possibility really of avoiding it?

A. That is a point that could be avoided and is avoided, too; I think very little oil does get in, in that Kilbourn machine, because the compressors have a water jacket.

Depositions taken in behalf of the libellants, at the offices of Messrs. Lewis & Cheyney, rooms 348–349 Bourse Building, Philadelphia, on Wednesday, June 8, 1898, at 10.30 A. M.

Present: Horace L. Cheyney, Esq., for libellants.
J. Rodman Paul, Esq., for respondents.

E. Platt Stratton, being duly sworn according to law, was examined as follows:

By Mr. Cheyney:

Q. Mr. Stratton, where do you live?

A. College Point, New York.

Q. You are engaged in business in the City of New York?

A. Yes, sir.

Q. What is your business?

A. I am chief engineer and surveyor of the Record of American and Foreign Shipping, also consulting engineer of the Board of American Underwriters in New York.

Q. And as chief engineer of the Record what are your duties?

A. My duties are to form rules for the construction of ships and also to survey ships under construction and supervise plans submitted and examine plans of the proposed construction of ships.

Q. Do you know the steamship "Southwark" which is now running to New York and which formerly ran to Philadelphia in the American Line?

A. Yes, sir.

Q. I wish you would please state whether or not you made in the month of December, 1894, any inspection of that ship and particularly an inspection of the refrigerating machinery?

(Objected to by Mr. Paul as irrelevant.)

A. I did.

Q. Where was the vessel lying at that time?

A. Here at Philadelphia. I don't recollect the wharf. It was at the regular wharf here in Philadelphia.

Q. What officers of the ship did you see upon the occasion of your visit there?

A. I saw Mr. Welsh, the chief engineer of the line who has charge of those ships, and subsequently I saw Mr. MacDonald the chief engineer of the ship, and Mr. MacDonald in turn introduced me to the engineer in charge of the refrigerating apparatus.

By Mr. Paul:

Q. What is his name?

A. Well, sir; I couldn't tell you what his name was. I made a record of it at the time. After he was introduced to me, I made a record of it at the time. The chief engineer introduced me to him and told me his name. I made a

memorandum of it at the time who this man was, the chief engineer of this apparatus and had been ever since the ship came out. He was rather a dark yellow-like complexioned if I recollect right.

By MR. CHEYNEY:

Q. He was represented to you as the engineer who had charge of the refrigerating apparatus since the vessel came out?

(Objected to by Mr. Paul.)

A. Yes, sir.

Q. Did he say whether or not he had been in charge of the machinery in the month of July, 1894, when there was some trouble with a cargo of meat?

A. He did, sir.

Q. Did or did not the engineer in charge of the refrigerating machinery make any statement as to the accident upon that voyage.

(Objected to by Mr. Paul as incompetent to bind the steamship.)

A. I don't think he volunteered a statement, but I asked if he was in charge of the machinery on that voyage. He said he was, and he had been, in charge of the machinery ever since the vessel came out, and then I asked him when this accident occurred. He said the bonnet split and the accident occurred about two hours and a half before the vessel left the dock. He said he reported this to the chief engineer and he attempted to repair it at that time. And then I asked him if he was positive that it was two hours and a half, and he said from two hours to two hours and a half before the ship left.

Q. Was there anyone present when the conversation took place?

A. Only the chief engineer, MacDonald was present.

Q. He was in the vessel at the time the accident occurred?

A. No, sir; I think he was not I don't know whether

he heard that or not. He was over in the engine room probably.

Q. Now just state whether you had any conversation with MacDonald, the chief engineer, in regards to the repairs and overhauling of this refrigerator machinery?

A. Yes, sir; I did. I talked with him before I went down in the cabin and he had the log book and there were certain things in the log book which he very properly refused to let me see.

(Objected to by Mr. Paul.)

WITNESS (continuing): He kept the log book in front of him and he read from it at times things he thought might interest me.

Q. Well, now, please state whether or not he made any statement as to whether or not the machinery had been overhauled and repaired after the accident in question?

(Objected to by Mr. Paul, as he has already stated what he did on the ship at that time.)

A. He assured me that the machinery, that is the refrigerating apparatus, had been thoroughly overhauled, I think certain portions of it were new.

By MR. PAUL:

Q. When?

A. I think the next voyage but one after the damage to the meat.

Q. The next voyage but one?

A. Yes, sir.

(Objected to by Mr. Paul as hearsay and incompetent to bind the vessel and also because it doesn't appear that the person making the statement spoke of his own knowledge.)

CROSS EXAMINATION.

By MR. PAUL:

×*Q.* Mr. Stratton, how did you happen to make the visit to the vessel?

A. I think I received a letter from Mr. Lodge Colton to

proceed to this vessel and make an examination in relation to this matter.

×*Q.* Who is Mr. Lodge Colton?

A. Well, he used to be the captain of one of the Ward Line ships out of New York. He is now identified with the Insurance Company of North America in some capacity. I don't know what it is.

×*Q.* Did he ask you to go in reference to this particular case?

A. Yes, sir.

×*Q.* Did you make any memorandum of the time you were on the vessel what was said?

A. I did.

×*Q.* Have you got that memorandum?

A. I have not got them here but the communications that I sent are based on that memorandum, that is, letters I sent to Mr. Colton which I subsequently examined. They were generally made in lead pencil.

×*Q.* Did you state to the people, down there, the purpose of your visit?

A. I went further than that, I went to Mr. Griscom, who I know very well, and I asked Mr. Griscom if he would have any objection to my making an investigation of this kind as a friend of his. He said none whatever. He said he didn't know that he would lief have me do it as any one in the world.

×*Q.* And you saw the people you have mentioned there?

A. I wouldn't state it as a fact, but my impression was that Mr. Griscom either gave me a letter or that there was some communication between the office and the chief engineer, Mr. Welsh, about my coming. My desire being to avoid anything looking like seeking the information in an underhand manner.

×*Q.* What was the date you made that visit?

A. That, sir, I couldn't tell you.

×*Q.* Can't you give us the exact date?

A. (Looking at paper.) On the twenty-sixth day of December, 1894.

×*Q.* You said that the person who told you that he had had charge of the refrigerating machinery, told you that the bonnet gave out two or three hours before they sailed?

A. I think he said from two to two hours and a half.

×*Q.* And that he also stated that had been repaired?

A. No, the chief engineer attempted to repair it before they left, that is, made a temporary repair, such a repair as they could without reference to the shops or anything of that kind as he understood the bonnet split. Well, in those apparatus the ammonia is circulated to a very high pressure and a very small leak might overcome a very large pressure.

×*Q.* Are you familiar with this machinery?

A. I can only say I am familiar with it. I am not an expert on it. I never made a study of it.

×*Q.* Do you happen to know that the time when the greatest work is expected from the machinery is after the meat, which is presumably of somewhat low temperature, is put in the commercial box?

A. That is immediately after the commercial box is closed, that is to get the temperature of the meat down.

×*Q.* That is a very short time before sailing?

A. That is generally put in and of course the effort is kept up until the commercial box goes down to the freezing point.

×*Q.* And that is a little while before sailing?

A. Yes, sir; generally.

×*Q.* And if a break occurs, it is likely to occur on or about that time owing to the greater efforts of the machinery?

A. Well the machine is worked to its maximum ability.

×*Q.* You know enough about machinery to know that the weakest part of all machinery is generally the joints?

A. That is, not necessarily speaking.

×*Q.* But generally speaking?

A. The joints of any apparatus is that it requires the greatest looking after.

×*Q.* And more difficulty to avoid trouble?

A. But joints are generally made—the average joint is amply large enough—but the most difficulty we have in machines of this kind is not with the joint. It is accidents to blow holes and castings and trifles of that kind. I don't think it could have been a joint in this case, because, if it had, he would have said a joint gave out.

×*Q.* The fact of a leak in the bonnet, however, which may have been caused from a joint, the splitting of the bonnet would of itself, would it not now, you think, subsequently break down?

A. To a large extent, yes, sir. At an excessive speed and the work that would have to be performed would be far in excess of ordinary conditions.

×*Q.* If the bonnet had been split, it would have been possible would it now to have used it afterwards?

A. Oh, no, sir.

×*Q.* How could they have fixed it?

A. Well, they might have taken and put a wrought iron patch on the inside of it. That is, setting the patch up in kind of a gasket and lay the patch over it, and top right above it, and the bonnet, and in that way he might have accomplished a fair repair.

×*Q.* On the spot?

A. Yes, sir.

×*Q.* That would have been the more effectual according to circumstances?

A. Yes, sir.

×*Q.* But that would have been the proper thing to have done in your opinion?

A. Well, that would have been the best thing I should have done under the circumstances, but with the ship at the dock, what I would have done would be to have gone and got a big piece of wrought iron and had it put in the pump. It would have been substantial. The difficulty of putting a gasket is to bring the edges of the split together. A leak,

upon the whole, is bound to increase the working of that pump.

×Q. It is impossible to avoid, in machinery of this kind, as well as in other machinery, an occasional breaking down, is it not?

A. Yes, sir.

×Q. And this man told you that the break down was a short time before leaving, that they had repaired it as well as they could?

A. No, sir; he didn't say that. On the contrary, his demeanor conveyed the idea that it was a great mistake not to repair the ship before she left the dock.

×Q. That is, by his demeanor?

A. That is the inference from what he said and the manner he said it.

×Q. He didn't say that in so many words?

A. No, sir; I don't think he did.

Q×. You saw the chief engineer looking over the log?

A. That is Mr. MacDonald.

×Q. What log did you refer to?

A. The log of the ship.

×Q. They have a different one each voyage?

A. Well, this was a log-book which contained in it a letter, I think, by the previous chief engineer to the company.

×Q. You mean to say that was entered on the log?

A. I think there was a copy of it in his letter-book, either in the log or letter-book. My impression was that it was in a letter-book.

×Q. Then you can't say that it was the log-book, but it may have been a letter-book?

A. He read this letter of the previous chief engineer from a copy in the letter-book.

×Q. That is, did he read from the log-book or from the letter-book?

A. Well, he read from the two books and part from this letter-book.

×*Q.* But you can't say whether he read from the official log or from what particular log?

A. No, sir; I couldn't say which particular one, but he referred to the log book as being in the possession at the office, which contained all the facts.

×*Q.* But you didn't see that there?

A. No, sir.

By Mr. Cheyney:

×*Q.* Mr. Stratton, please state whether or not in your opinion as an engineer it was proper for the "Southwark" to have started out on that voyage in the middle of summer carrying a perishable cargo, with the bonnet split, as was stated by the engineer, and with such temporary repairs only as were made on board?

A. If you asked if I was the engineer I would undertake such a thing, I would say no, sir; chiefly because I was not there and I didn't see the conditions; but I look upon it as exceedingly and decidedly suicidal to have started on that voyage in that condition. I think the engineer was very foolish to start. He was at a point where he could have made a substantial repair. He was jeopardizing the whole contents of that commercial box, and I think if he had known more about refrigerating, he wouldn't have started.

By Mr. Paul:

×*Q.* Mr. Stratton, you have not a specific knowledge of the nature of the break or the repairs that were put upon it?

A. No, sir.

×*Q.* And, therefore, you wouldn't say positive, I suppose, one way or the other in the absence of fuller information?

A. I am unable to judge of all the facts relating to this subject, but my impression was that the Line acted very wisely in dispensing with the engineer's services.

×*Q.* But you wouldn't like to pass upon his conduct merely upon the slight information you have got?

A. Well, the result of the destruction of that meat itself demonstrates to me that there was something wrong, and I think it was the part of the chief engineer to attend to that because he was at the dock.

×*Q.* You have said that he might have done these things in the way of repair, that the new bonnet was unnecessary?

A. Oh, no, sir; I think a substitute for the old bonnet, that is a piece of metal, solid metal, in itself was necessary. You see the head of this bonnet was cast iron and he could have gone to a shop here in the space of two or three hours, he could easily have got a new head made for that, say five-eighths or even three-quarters.

×*Q.* Did he state to you exactly what was done in the way of repairs?

A. No, sir.

×*Q.* Therefore you can't say whether that was not done?

A. If it had been, I don't believe the accident would have occurred?

×*Q.* That is the only reason?

A. Yes, sir.

×*Q.* That is all you know?

A. He stated that the bonnet was split, and that the split was the primary cause of the disaster. What he should have done was to put on a bonnet that would have held that—would have held the pressure without any leaks.

×*Q.* But you can't say from anything that you know or heard, what was done?

A. I know as a machinist and as an engineer that the only way to repair a split bonnet, or two ways to repair a split bonnet, one is to take a substitute and the other is to patch it. Well, now, most of the pressure that was used in that machine, it is almost an impossibility to patch a bonnet in that way. These bonnets are generally pumped out internally and, of course, there is a very large service and a very high pressure. Well, in case the pressure widens the aperture,

hence the only thing to make a good repair is to put a heavy sheet of iron on or steel.

×*Q.* And you say it was impossible to patch it?

A. I wouldn't like to say it was impossible to patch it, but in a little time, it was possible to patch it and make a good job of it.

×*Q.* Therefore, would you like to say it was not properly repaired?

A. Oh, no, I don't know that.

(Signature waived.)

Testimony taken on behalf of the libellants, at No. 160 Broadway, New York City, October 6, 1899, at 2.30 P. M.

Present: Horace L. Cheyney, Esq., for the libellants.
J. Rodman Paul, for the respondents.

Arthur Nixon Cross, being duly sworn and and examined as a witness for the libellants, testifies.

By Mr. Cheyney:

Q. What is your business?

A. A marine engineer.

Q. How long have you been following the sea?

A. A great many years—probably twenty-six.

Q. How long have you had an engineer's certificate?

A. Eighteen years.

Q. What is your position at the present time?

A. Chief engineer on the steamer "Mesaba."

Q. Between what ports does the "Mesaba" sail?

A. New York and London.

Q. How many vessels have you been chief engineer of?

A. The "Manitoba," "Minnewaska," "Mississippi," "Missouri," in the Atlantic Transport Line.

Q. Have you had experience upon those vessels in the carriage of fresh meats across the Atlantic?

A. Yes, sir; we have carried fresh meats ten years without missing a voyage.

Q. Do you carry meat on the "Mesaba"?

A. Yes.

Q. What kind of refrigerating machines have you on that vessel?

A. We have a De La Vergne ammonia machine at one end of the ship, and at the other end of the ship we have a British Linde machine, which is also an ammonia machine.

Q. Do you carry fresh meats upon any of the other vessels?

A. Yes, sir; the "Minnewaska," "Manitoba" and "Mississippi."

Q. Are you familiar with the port of Philadelphia?

A. I used to run there. I haven't been there for eight or nine years.

Q. On what vessels did you run to Philadelphia?

A. The "Missouri."

Q. Are you familiar with the refrigerating machinery which is in use in vessels engaged in carrying meat?

A. Oh, yes, I think so.

Q. What is the type which is generally in use?

A. The ammonia machine, carbonic acid machine, Co_2 machine.

Q. I want to read this question to you: "The steamship 'Southwark' left the port of Philadelphia on the 4th of July with a shipment of nine hundred and twenty quarters of beef consigned by parties in Philadelphia to Liverpool; the refrigerating machinery had been working from twenty-four to forty-eight hours prior to the time the vessel left her dock. At the time the vessel sailed the temperature in the commercial room in which the meat was carried was from thirty-eight to forty-two degrees. Shortly after leaving the dock, within an hour or two, there was an accident to the refrigerating machinery, and on the next day there was another accident,

and a series of accidents which I will describe to you as they have been described by the chief engineer of the vessel:

"'The bonnet on top of the condenser of the refrigerating machinery for the commercial box started to leak badly before we got to Reedy Island, and with the heat of the room, and the smell of the ammonia, it was a difficult matter to get it shut off and the condenser pumped out. As soon as I got it shut off I put the ship's machine on the commercial box, and after getting the new joint made on the 5th, and shortly after starting the machine, the after compression pump gave a heavy knock. I exhausted the pump and opened it out and found both connecting rod bolts broken, connecting rod bent and compression piston cracked. I then disconnected the engines and worked with the single engine and kept the two boxes going. On the 6th, after connecting the engine, I found the crank shaft was bent, and it was very difficult to straighten it out. On the 8th I had it connected, and it has worked fairly well since. The temperature of the box was forty-two degrees when we left Philadelphia, and I was unable to get it below that until the 7th. Since then the temperature has gradually decreased to thirty-two degrees.'"

Assuming that the temperature of the inflowing water used in the condenser was seventy-three degrees, state whether, in your opinion, the accident which is described in the report of the engineer could or could not have been caused by the temperature of the water?

(Mr. Paul objects as not covering accurately the facts in this case.)

(Mr. Cheyney states that if Mr. Paul will kindly point out in what particulars the question is inaccurate, he will gladly correct it.)

(Mr. Paul states that he will do so upon the argument.)

A. I don't think it could.

Q. Is it unusual to use water in the condenser of a temperature of seventy-three degrees?

A. It is not unusual at all in the summer months; sometimes when it is not as cold as that; we get it running eighty, eighty-two and sometimes eighty-four in the Gulf Stream for probably forty-eight hours sometimes.

Q. Will the machines work properly?

A. It is a little harder on the machine when the circulating water is at a high temperature, but nothing serious.

Q. I hand you a copy of the log of the ship "Mesaba," or a paper which purports to be a copy. Will you kindly tell me what that is?

A. Yes, that is a copy of the log of the Linde machine.

Q. For what voyage, commencing at what time?

A. July 29th this year.

Q. Did you make that copy yourself?

A. Yes, sir.

Q. Is that a correct statement of the temperature of water found during that voyage?

A. Yes; absolutely as it happened.

Q. I show you another copy of the engineer's log of the "Mesaba" for the voyage commencing September 2nd. Did you make that copy?

A. I did.

Q. Does that contain a true statement of the different temperatures and conditions of your machine during that voyage?

A. Exactly the same as sent in. It is absolutely correct.

(Mr. Cheyney offers the papers in evidence.)

(Mr. Paul objects.)

(They are marked Exhibits 1 and 2 of this date with the initials "A. S.")

Q. Under the head of "Temperature of Hold," I find marked "F. A."; what does that mean?

A. The forward end of the box and the aft end of the box; the same box, two on each side.

Q. How are your compartments in which meat is carried used on the western voyage? Are they used for carrying any cargo at all?

A. No; come out empty.

Q. Are they cooled or not during the voyage west?

A. No, sir; cleaned out on the voyage this way.

Q. How long before leaving the port, or before the reception of meat in those compartments, do you commence to cool the compartments?

A. That depends on the temperature of the atmosphere. In hot weather weather we probably take forty-eight or fifty hours; that is, the box opens at about a temperature of sixty-five; it will take forty-eight to fifty hours to bring it down to twenty-two, and that is what they want for loading. That is what we have to get every time.

Q. That is before the boxes are opened to receive the cargo?

A. Yes, sir.

Q. How long are boxes usually opened for the purpose of receiving cargo?

A. It depends on how much they put in, but, as a usual thing, ten or twelve hours; twelve hours, I should judge.

Q. And they are then closed up again?

A. They are then closed up again. The doors are sealed up then.

Q. What is the usual temperature in the room at the time the doors are sealed in summer time?

A. 34, 36; 36° in hot weather; after the box has been opened all night.

Q. During the time the meat is being received, is the refrigerating machinery at work or not?

A. We shut down when the doors are opened, because you can't cool the atmosphere down there. Sometimes we would keep turning there very slowly; nearly always shut down.

Q. What temperature do you usually keep the rooms during the voyage?

A. They want it as near 29½ as we can possibly get it; they want an average of 29½.

Q. That is below the freezing point?

A. Yes, but it doesn't freeze beef, you know. It takes a much lower temperature to freeze beef. It is put in such a mass, and so close together, that it won't freeze.

Q. How long after you have closed and sealed the room do you succeed in reducing the temperature to that degree?

A. That depends upon outside temperature again, but, as a rule, we fetch it down the second day; down to what we want it.

Q. Is that the extreme limit?

A. Well, yes, I suppose so. I don't think we are ever longer than that.

Q. Sometimes it will be shorter?

A. Yes, if it is cold weather outside and the water is down to about forty-eight, then it comes down pretty quick.

Q. It is only a question of a very few hours then?

A. Yes.

Q. I wish you to look at the paper which is marked "Extract from Abstract Log of the Steamer Southwark", marked "Exhibit No. 5. September 19th, 1895, C. E. Hough"; in this log for July 24th the temperature of the incoming brine is given as 40 degrees. Can you tell what is meant by that phrase "incoming brine"; whether it is the temperature of the brine going into the box, or returning?

A. I should take it after it has travelled through the box and is coming back.

Q. Is it customary upon the "Mesaba," and the other vessels in which you have been engaged, to keep the temperature of the brine both as it goes in and comes out of the box?

A. There is generally two, three or four degrees difference.

Q. Is it usual to keep a record of the temperature of the brine both going in and returning?

A. Why, certainly.

Q. You say there is usually a difference of three or four degrees?

A. Say from two to four degrees is the usual thing; possibly five sometimes.

Q. Was or was not the brine at the temperature of 40 degrees of a sufficiently low temperature to so cool the room that the meat could be carried with safety?

A. Certainly not.

Q. I understand you to say no matter whether that expressed the incoming or returning temperature, it is too high?

A. Too high a temperature for brine.

A. What is the proper temperature of the brine as it goes into the commercial room?

A. 20 degrees is a good temperature, but that is when you commence to cool down.

Q. When you commence to cool down and during the time you are receiving the cargo?

A. I should be quite satisfied with a temperature of twenty while we were cooling down the box.

Q. What should be the temperature immediately after sealing the boxes?

A. I give a high temperature when I say twenty; we bring it down to sixteen, fifteen and fourteen a few days later.

Q. And that would bring the temperature of the returning brine to somewhere about twenty?

A. Yes; it is generally a few degrees higher when it has gone through the pipes.

Q. What does that temperature of 40 degrees indicate as to the working of the machine?

A. I should think there was something wrong with the compressor; probably short of ammonia, or the expansion valve may be out of order.

Q. Does it indicate whether the machine is working in a proper and efficient manner?

A. It indicates faulty working for me.

Q. Is there any question about that?

A. I don't think so, because it is easy enough to bring the brine down if the machine is in good order, and the slower you circulate the brine the colder it will be.

Q. The pressure on the refrigerator guage is given as forty?

A. That is high.

Q. The pressure on the condenser guage is forty on the 4th of July?

A. That is pretty high.

Q. And the pressure on the brine and pump gauge is thirty-two?

A. They are all too high. One huudred and fifty is the proper condenser pressure. For the refrigerator pressure probably twenty-five.

Q. Taken altogether what do these figures indicate as to the working of the machine?

A. It indicates there was something wrong with the machine, from various causes.

Q. Do you keep on the "Mesaba," or have you kept upon other vessels, records of the temperature and the different pressures during the time the vessel is lying at the dock, reducing the temperature for the purpose of receiving cargo?

A. Always.

Q. Is that the practice upon vessels generally in the trade so far as you know?

A. It is in my Line. I don't know for other vessels, but I should think so; they have to keep a record in case of any accident, to show what they are doing.

Q. What is the character of brine for retaining cold?

A. It can retain cold for a long time when it is once cold. When it is once to a low temperature it will retain that for a long time; of course you can't freeze it.

Q. Does the temperature of brine at 40 degrees indicate whether or not the brine during the preceding twenty-four or forty-eight hours in which it is said the machine had been at work, had been at a proper temperature or not?

A. I should say it had never been cooled.

Q. In your opinion, judging from the figures as to the temperature and pressures contained in this log, was or was not the steamship "Southwark," and especially the refrigera-

ting machinery, in a fit condition to start on a transatlantic voyage with a cargo of meat?

(Mr. Paul objects.)

A. I do not think the refrigerator was working right. I am surprised they put the meat in at that opening temperature.

CROSS EXAMINATION.

By MR. PAUL:

×*Q.* Did you say you were the engineer in special charge of the refrigerating machinery, or the chief engineer?

A. The chief engineer.

×*Q.* I saw it signed here "Refrigerating Engineer."

A. That is printed refrigerating engineer, but the name was written.

×*Q.* Do you know the Kilburn refrigerating machinery?

A. I have never been in charge, but I have seen them.

×*Q.* What is the reputation of that machine?

A. I don't know very much about that, but I have heard they were very good machines on the line, greatly used in breweries, but for ship use I know nothing about them.

×*Q.* You have nothing against them?

A. I have nothing against them; no. I have heard that the Kilburn machine was a very good machine.

×*Q.* I see in these copies of the logs that you have produced that there are two observations noted a day for the various matters which are contained there. Are those two observations all that are actually taken, or do they form an average?

A. No; we take the day at six A. M. and six P. M. That is the temperature of the box at those times.

×*Q.* There are some logs on some of the steamers of other lines which only take the average temperature of the day, are there not?

A. I don't think it. We take the actual temperature at six A. M. and at six P. M.

×*Q.* But don't you know that so far as the record is concerned, however often the temperature may be taken, that there are log books keeping the temperature which give finally, for each day, merely the average of that day?

A. I don't know of my own knowledge that there are such log books.

×*Q.* If they are, that average temperature would not indicate the temperature at any one moment?

A. No, sir; it would be an average.

×*Q.* And it is conceivable that the temperature might have been low at one portion of the day, and high at another portion, or in some accident or trouble?

A. That is possible, and the average would go up that much.

×*Q.* I see in these logs that occurs upon September 2d and one upon July 29th. Were those the dates on which the vessel left port?

A. Yes, sir.

×*Q.* On the voyage beginning July 29th, it took eight days, did it not, before you got your temperature down to what you said should be the proper temperature?

A. Yes; we have a margin given us from 29 to 32.

×*Q.* So that 32 would not be an improper temperature?

A. Not at all.

×*Q.* That figure which looks like 51, I suppose, means 31?

A. That is 31, 32, etc.

×*Q.* The hardest work is done by a refrigerating machine immediately after the meat is put in, is it not?

A. Yes, when the temperatures are high, then the refrigerator is always worked hard.

×*Q.* There are various circumstances which you are familiar with, I suppose, which tend to make the temperature after putting the meat in higher or lower, according to those circumstances?

A. Certainly.

×*Q.* The hot weather, of course, would be a very important factor?

A. Yes, sir, and the condition of the meat.

×*Q.* What is the custom with regard to the meat that you generally transport—what is the temperature when you take it in?

A. From 34 to 40.

×*Q.* That means that in summer time that has been pretty thoroughly cooled, if not frozen?

A. It has been what they call "chilled."

×*Q.* If the beef were put in at a considerable higher temperature that would make a considerable difference?

A. You would have all the more heat to take out of it.

×*Q.* With such a consideration, and also with the fact that the surrounding water was warm summer river water, you would expect pretty hard work on any machine about the time the meat left port, would you not?

A. The higher the temperature, the more work the machine has to do.

×*Q.* And that particular time would bring pretty hard work upon any machine?

A. Decidedly.

×*Q.* And if there was any delay or difficulty in the machine, it would be more likely to show this at that time than at any other time?

A. Certainly.

×*Q.* These machines do occasionally break down, do they not?

A. I believe so, but I have never had a break down—not for more than five or six hours.

×*Q.* But you have known that such things happen?

A. Oh, yes, I have indeed.

×*Q.* And there are break downs which so far as your skill and foresight could provide against, could hardly be avoided?

A. Any piece of machinery is liable to break down.

×*Q.* And liable to break down without fault on the part of the engineer?

A. I think so. There are such things as constructural defects.

×*Q.* Can you make an absolutely tight joint? Is it not conceivable that anything in the nature of a joint may give away?

A. I think it is easy to make an absolutely tight joint.

×*Q.* But, as a matter of fact, although it may be easy to make a tight joint, isn't it usually the joint that gives way rather than the structural part?

A. Not necessarily the joint. The weakest part will give way. If it is the metal, the metal will give way first.

×*Q.* Don't you consider that the joint is usually the weakest part?

A. It is calculated as a solid casting, you know.

×*Q.* It may be calculated as a solid casting, but won't you, from your experience, have to admit that, assuming a properly tested and properly constructed machine, the joints of that machine are more likely to give way than the structural part?

A. Yes, if the joint is not properly made.

×*Q.* One of the joints may give way before the actual machine itself will break?

A. I have one joint run for three years and never give way.

×*Q.* But wouldn't the joint be more likely to break?

A. If it wasn't properly made, it would be more likely to blow out.

×*Q.* But you have conceded that it is not always possible to provide against break downs of machinery?

A. That is so; yes, sir; not with the greatest care.

×*Q.* Where there is an excess of pressure, the joint is the place that is apt to go?

A. Exactly; where the temperatures are high and there is trouble with ammonia.

×*Q.* You wouldn't pretend to say, from the questions

that have been put to you as to the steamer "Southwark," and not having examined the machine, that the trouble which evidently to your mind occurred there was due or not due to want of proper care?

A. I have only the extract of the engineer's log to go by, and that is wrong.

×*Q.* What is wrong?

A. The pressures and temperatures of the cargo.

×*Q.* They say that something was wrong?

A. They say that something was wrong with the machinery.

×*Q.* But you couldn't pretend to say what that something was?

A. No, I can only surmise it; there may be half a dozen different things.

×*Q.* And some of those things might be through the fault of the engineer, and some might not?

A. That is right.

RE-DIRECT EXAMINATION.

By Mr. CHEYNEY:

RDQ. Suppose you have your temperature at a proper degree, say 29, during the voyage, and for any reason it was necessary to stop your refrigerating machine for a period of say twelve hours during that time; what will be the increase in the temperature in your room?

A. I should say 1½ or 2 degrees.

RDQ. In other words you can stop your engines for twelve hours with very little, if any, change in the temperature in you room?

A. I have done it several times.

JOHN YOUNG, being duly sworn and examined as a witness for the libellants, testifies:

By MR. CHEYNEY:

Q. You are the second engineer of the steamer "Mesaba" and have a chief engineer's license, and have had it for eight years?

A. Yes, sir.

Q. Have you carried cargoes of fresh meat during that time?

A. All that time.

Q. Are you familiar with refrigerating machinery?

A. For fifteen years.

Q. I read you this question in regard to the steamer "Southwark" this morning:

> "The bonnet on top of the condenser of the refrigerating machine for the commercial box started to leak badly before we got to Reedy Island, and with the heat of the room and the smell of ammonia it was a difficult matter to get it shut off and the condenser pumped out. As soon as I got it shut off I put the ship's machine on the commercial box. After getting the new joint made on the 5th, and shortly after starting the machine, the after compression pump gave a heavy knock. I exhausted the pump and opened it out and found both connecting rod bolts broken, connecting rod bent and compression piston cracked. I then disconnected the engines and worked with the single engine and kept the two boxes going. On the 6th, after connecting the engine I found the crank shaft was bent and it was very difficult to straighten it out. On the 8th I had it con-

nected and it has worked fairly well since. The temperature of the box was forty-two degrees when we left Philadelphia and I was unable to get it below that until the 7th. Since then the temperature has gradually decreased to thirty-two degrees."

I simply want you to state whether, assuming the temperature of the inflowing water used in the condenser to be 73 degrees, the accident described in that question and report of the engineer can have been caused by the water at 73?

A. Not a bit.

Q. Is 73 a usual or unusual temperature?

A. In the summer time we get it to 85 sometimes; but 73 to 80 degrees you will have it about, for five months of the summer, and, perhaps, as high as 85; but 85 did no harm to the machine whatever, as long as we were provided with ammonia and everything was in good working order.

Q. The abstract of log of the steamship "Southwark" shows that on July 4th the temperature of the incoming brine was 40 degrees; the pressure of the refrigerator gauge was 40; the pressure on condenser gauge was 210; the pressure on the brine pump gauge was 32; and the temperature of the commercial room, in which the meat was carried, was 42. Please state whether the temperature and the pressures, which are contained in that log, show whether the machine was working properly or not?

A. You have got good condenser pressure there; there is good pressure there, but all the rest is wrong, every bit of it.

Q. What do they indicate, so far as the working of the machine was concerned—working properly or not working properly?

A. Not working properly.

Q. What is the usual temperature of the brine that goes in?

A. 10 degrees going in; 40 puts your hold in up to 48; your brine is going in 40, and puts your engine to 48.

Q. You can't tell from those figures what the trouble was?

A. I can guess it, but I don't know; it is not right for me to say; perhaps air and perhaps oil has been traveling there; but there is something radically wrong there.

Q. You think the machine was working in a proper condition for starting out on a transatlantic voyage with a cargo of fresh meat?

A. No; simply because his holds ought to have been further down.

CROSS EXAMINATION.

By MR. PAUL:

×*Q.* What sort of a machine have you on your boat?

A. We have got De la Vergne and Linde.

×*Q.* Do you know the Kilburn machine?

A. Yes; I know the De la Vergne, the Linde, and I know the Sedley and Liverpool.

×*Q.* Have you ever worked the Kilburn?

A. No, never worked the Kilburn.

×*Q.* I understand it is a good machine?

A. Yes; very good.

×*Q.* I suppose that these machines are liable sometimes to break down?

A. Oh, yes, we all break down ourselves sometimes.

×*Q.* And you sometimes break down without any fault of anybody, but the machinery gives out?

A. No fault whatever; even this morning we had a breakdown ourselves, and I got it going again in about two hours' time.

×*Q.* From the mere fact that the machine breaks down you couldn't say that there was any fault necessarily, one way or the other, could you?

A. Well, it depends on where it broke down you know. You break down your condenser or something like that—there is enough to contend with even then, you know. You

are apt to lose your ammonia for one thing, aud you are apt to fill up your condenser with the air; and once you do that it shows the same as that man there on the log, he couldn't get his freezing point low enough you know; and that is how air will act mixed with ammonia; the two mixes together.

×*Q.* So that when a break comes in the compressor that is apt to be the trouble, from the air getting in and mixing with the ammonia?

A. Yes.

×*Q.* Can you always prevent the air getting in if your compressor works?

A. No; sometimes you have got to stop a while after that and when the air comes right at the top then you draw it off gradually.

×*Q.* So that there may be a break in the compressor without the fault of anybody, but there might be fault in not treating that break properly afterwards?

A. You can't help a great deal once you get a break in your compressor or the compressor is filled up with air. When you close it up again or pump it up again all this air goes right into the condenser.

×*Q.* But the compressor may break without fault of anybody?

A. Oh, yes.

October 16, 1899.

Counsel for libellants renew their call upon the respondents, heretofore made on September 18, 1895, to produce the engineer's log book and the refrigerator log book of the steamship "Southwark" for the voyage commencing July 4, 1894.

They offer in evidence the following correspondence in relation thereto.

December 23, 1897.

MY DEAR CHEYNEY:

I have sent for the original log books but have not yet received them, as it is probable some of them are in Liverpool. I will get them as soon as possible, and there need be no meeting with reference thereto. I understand that the formal call has been made by you.

Yours truly,

(Signed) J. RODMAN PAUL.

January 15, 1898.

J. Rodman Paul, Esq.,
505 Chestnut St., Phila.

MY DEAR MR. PAUL:

I see that the steamship "Southwark" has been in port. Have you been able to procure the log books for which I have heretofore called?

Very truly yours,

(Signed) HORACE L. CHEYNEY.

January 17, 1898.

MARTIN, FULLER & CO.,

S. S. "Southwark."

MY DEAR MR. CHEYNEY:

The only log book of the "Southwark" on this side is the ship's log, which I have, and which you are welcome to at any time. The engineer's log containing the refrigerator log is at Liverpool, and was sent for some time ago, and search is being made for it; all log books are generally left in Liverpool.

Yours truly,

(Signed) J. RODMAN PAUL.

January 26, 1898.

J. Rodman Paul, Esq.,
505 Chestnut St.

My DEAR MR. PAUL:—

Have you succeeded in obtaining the log book of the steamship "Southwark" yet? I do not want to seem to urge you too much in this case, but it is necessary that this log should be produced before we can proceed with our testimony, and as the case has been pending for a considerable time, we desire to have it closed up before the summer.

Very truly yours,

(Signed) H. L. CHEYNEY.

January 26, 1898.

S. S. "Southwark."

My DEAR CHEYNEY:

I am as anxious as you are to close up this long-pending case; you will recall that we had copies of the refrigerator

log, and the original log was not retained at the time. All logs are sent to Liverpool, and this one is supposed to be there, and has been sent for, but has not yet arrived, so far as I am informed. I have sent your letter to Mr. Higbee, urging him to obtain the log as speedily as possible.

Yours truly,

(Signed) J. RODMAN PAUL.

The libellants further give notice that having heretofore called upon the respondent to state whether it was their intention to call Gilbert Paul, the chief engineer of the steamship "Southwark," upon the voyage in question, as a witness, and having been advised in reply that respondents did not intend to call him as a witness, and that since that time, the said Paul having refused to give any information whatever as to the cause or nature of the accident to the refrigerating machinery, both to the libellants' counsel and to Wilfrid H. Fleming, a witness called on behalf of the libellants, on the ground that he had given a full report thereof to the owners of the steamship "Southwark;" the libellants, therefore, give notice to the respondents, that the said Paul is now employed upon the steamship "Armenian," trading between Liverpool and Boston, and they call upon them to produce him as a witness, and the libellants agree to take his testimony in Boston.

Notice is also given again to the respondents of their failure to take the testimony of Shinn, the refrigerating engineer actually in charge of the refrigerating machinery at the time of the accident, and they again call upon the respondents to state whether it is their intention to call him as a witness.

Answer of Respondents to Foregoing Call.

October 20, 1899

S. S. "Southwark"

H. L. CHEYNEY, Esq.,

Dear Sir:

In reply to your call in this case dated October 16, 1899, I would say that the same is practically answered by my letter to you dated April 5th 1898, which you have not included in the correspondence contained in your call, and which reads as follows:

Martin Fuller & Co. v. S. S. "Southwark"

H. L. CHEYNEY Esq.,

Dear Sir:

Replying to yours of the 17th ult., in this case, we would say, that so long a time has elapsed since anything has been done that it was necessary to go over the testimony in order to refresh our recollection. As is shown by the testimony, both Gilbert Paul the chief engineer, and Shinn, the fourth engineer, left the ship and the service of the Company a few voyages after the voyage in question, and before this suit was brought (February 1895). The persons mentioned could throw no additional light upon the case, and therefore we have not thought it necessary to find and call them as our witnesses. If, however, you desire to call them, we shall be glad to assist you in any way in our power to ascertain their whereabouts. When last heard from Paul was engaged upon another steamship line running from Liverpool, as we think you already know, and inquiry in Liverpool might discover the address of Shinn.

"As we have already advised you, the engineer's log-book has become lost or mislaid in this long lapse of time. Before the final closing of the case, I should wish to call the Manager of the Company to show the efforts made to find this log-book.

Yours truly

(Signed) J. RODMAN PAUL."

I may add that as you have not yet closed your case, it is not necessary for us to state until you do so, whether or not we shall call or attempt to examine the persons mentioned by you. We are obliged for the information contained in your call as to the present whereabouts of Gilbert Paul, and as soon as we receive formal notice from you that your testimony is closed, we shall determine what, *if any*, testimony, we desire to take in rebuttal.

Yours very truly

(Signed) J. RODMAN PAUL.

PHILADELPHIA, Oct. 23, 1899.

J. RODMAN PAUL, ESQ.,
505 Chestnut St., Phila.

Steamship "Southwark."

DEAR SIR:

We are in receipt of your favor of the 20th inst., in reply o our call dated October 16, 1899, and which we will insert in our testimony as your answer, without the formality of a regular meeting, unless you desire the latter course to be pursued.

As your letter indicated misapprehension on your part as to the actual progress of this case, we now desire to call it to your attention.

A considerable time ago you gave us notice that testimony on behalf of the respondent had been closed, and since that time we have taken testimony on behalf of the libellant in rebuttal. We have now closed this testimony in rebuttal. While the proceedings in the admiralty are not always carried on with the strictness of common law proceedings, yet we cannot acknowledge any right on the part of the respondents to take any further testimony in rebuttal of our rebuttal testimony.

We have always deemed the testimony of Messrs. Paul, the chief engineer of the "Southwark," and Shinn, the refrigerating engineer, as of the utmost importance, as they are the only persons really familiar with the cause of the trouble with the machinery of the vessel. If you desire therefore even at this late day to take their testimony, we are perfectly willing to waive any objection against further testimony being taken on the part of the respondents, so far as necessary to permit their testimony to be taken upon the facts of the case.

In justice to our clients, however, we feel compelled to object to the taking of any other testimony, on the part of the respondents, as the case has been regularly tried by the introduction of evidence on behalf of the libellants in chief, the evidence of the respondents in defence and the evidence of the libellant in rebuttal.

As the testimony in the case is now closed, we think that we are entitled to ask whether it is your intention to examine Messrs. Paul and Shinn upon the facts of the case, because if you have no intention of examining them we will order the case on the list for argument.

Yours very truly,

(Signed) JOHN F. LEWIS,
H. L. CHEYNEY.

October 25, 1899.

S. S. "Southwark"

H. L. CHEYNEY, ESQ.,

Dear sir:

Replying to yours of the 23d permit me to remind you that your whole case has been brought out in your "rebuttal" testimony. If you are willing to stand upon your evidence in chief, I am quite willing to go to argument without any testimony. If, however, you rely upon your rebuttal testimony, it will be strange, indeed, if the Court compels me to go into the argument without the opportunity of answering it.

I understand that your testimony is now closed, and as soon as I have looked over the testimony already taken, I shall let you know what if any further testimony I desire to take. In view of the fact that you have been taking testimony for nearly three years (since early in 1897) this is, perhaps, not asking too much.

Yours truly

(Signed) J. RODMAN PAUL.

Exhibit No. 1, September 18, 1895, C. E. Hough.

EXTRACT FROM ABSTRACT LOG.

S. S. "Southwark," Voy. 5, East.

REFRIGERATOR LOG

Date	No. of Hours Machine Running	Temp. of Incoming Brine	Pressure on Refrigerator Gauge	Pressure on Condenser Gauge	Pressure on Brine Pump Gauge	TEMPERATURES					
						Ship's Storeroom	COMMERCIAL ROOMS				
July 4th	24.00	40	40	210	32	36	42				
" 5th	23.37	40	35	190	30	38	42				
" 6th	23.31	40	35	195	30	38	42				
" 7th	23.28	38	34	185	30	35	40				
" 8th	23.30	36	34	185	27	34	39				
" 9th	23.32	36	30	175	27	32	39				
" 10th	23.33	33	30	150	25	30	39				
" 11th	23.31	27	30	145	30	30	38				
" 12th	23.30	25	30	135	32	28	35				
" 13th	23.27	23	30	130	30	28	33				
" 14th	23.26	21	35	125	23	28	32				

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ANSWER.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT
OF PENNSYLVANIA.

IN ADMIRALTY.

To the Honorable William Butler, Judge of the said Court:

The answer of the International Navigation Company, claimant of the steamship "Southwark" to the libel and complaint of Joseph J. Martin, A. M. Fuller, William M. Fuller, Thomas B. Shriver, co-partners, trading under the firm name of Martin, Fuller & Company against the said steamship "Southwark," her engines, boilers and machinery, tackle, apparel and furniture, in a cause of breach of contract of affreightment, civil and maritime, respectfully represents:

1. It is true as set forth in the first paragraph of the libel that the libellants shipped on board the said steamship "Southwark" for transportation to the port of Liverpool, certain quarters of fresh beef under and subject to the provisions of the bill of lading attached to said libel as exhibit A; but it is denied that the said beef was as stated in said paragraph, in fact shipped in good order and condition, but on the contrary it is averred that the said beef was not properly chilled and cold when shipped to resist the extraordinarily hot weather prevailing at that time, and in accordance with the understanding and agreement with libellants subject to which beef is received from them and other shippers.

2. It is true as stated in the second paragraph of the libel that the steamship "Southwark" was and is accustomed to carry fresh meats from Philadelphia to Liverpool, and for that purpose is supplied with the best and most perfect refrigerating apparatus known, but the respondent shows to the Court that fresh meat is a perishable article, and likely to spoil and putrify, notwithstanding all care and effort on the part of the carrier, especially in summer weather, and, therefore, the said shipment of meat by libellants as well as all other shipments of meat was and are received subject to the following agreement between shippers and respondent upon which condition alone meat is accepted for transportation to Europe, viz.:

"It is expressly agreed that the goods shipped hereunder are absolutely at the risk of the owners in every respect, and that the carrier is responsible for no loss, delay or damage thereto however arising, including stowage and all risks of break down or injury however caused, either to the refrigerator or its machinery, even though arising from defect existing at or previous to the commencement of the voyage. Also that in case of the meat becoming from any cause in the opinion of the Master of the vessel putrid, dangerous or offensive to the passengers or crew it may be thrown overboard, or otherwise disposed of without liability to the carrier for consequent loss."

The foregoing agreement is plainly stamped or printed across the bill of lading.

By reason of the foregoing clause and agreement neither the respondent nor the said steamship "Southwark" are responsible for the spoiling or damage to the meat in the libel alleged.

3. It is not true as stated in the third paragraph of the libel that on the voyage in question the refrigerating apparatus was out of repair and working badly, and

during said voyage was not repaired; on the contrary, the said steamship "Southwark" left the port of Philadelphia with the refrigerating apparatus in perfect order and after due inspection, and all necessary repairs were duly and promptly made while on the voyage.

4. The true facts are as follows:

At the time libellant's meat was shipped on or about July 3d, 1894, the weather was extraordinarily hot, the temperature being considerably over 80 degrees. By the general agreement and understanding on the part of shippers and carriers of fresh meat such meat is always to be taken from the refrigerator cars to the ship's refrigerator boxes in a thoroughly chilled condition, so that it may resist the change of temperature in removing it from the cars to the vessel, and also any slight or temporary increase of temperature occurring upon the voyage. The meat shipped by libellants was not brought from the stock yards in refrigerator cars and was not chilled nor in proper condition for shipment, and resisting the temporary increase in temperature occurring on the voyage in question as hereinafter stated. Prior to the sailing of the steamship "Southwark" on the voyage in question the refrigerating apparatus was duly inspected, certain necessary repairs were made, and the steamship started upon her voyage fully manned and equipped and in a staunch and seaworthy condition, with her refrigerating apparatus in good order and of the best known pattern and type for the preservation of meat on ocean transportation and with a carefully selected equipment of officers and crew. At the beginning of the voyage, through some cause not known to respondent but not connected with any defect in the machinery at the time of leaving port, the refrigerator machinery broke and had to be repaired. The repairs were made by the engineers on board the steamship as

promptly as possible and the machinery was restored in a very short time to proper working condition, said breaking and stopping of the machinery could not have been anticipated or guarded against by any care on the part of respondent, and was not due to any fault or negligence. That during the time the refrigerating machinery was necessarily stopped an increase of temperature took place in the refrigerator boxes above the usual and normal temperature preserved in said boxes, but not above the temperature at which meat properly chilled and frozen when stowed could have been carried without damage. Upon arrival at the port of Liverpool respondent is informed that some of libellant's shipment of meat was found spoiled and damaged, but respondent asks that due proof thereof be made, if material, and also the amount of such damage which respondent avers to be greatly exaggerated as set forth in the libel.

5. That by the said Bill of Lading it is provided "That the carrier shall not be liable for loss or damage occasioned by heating, decay, putrefaction or any loss or damage arising from the nature of the goods, and respondent is not responsible for the spoiling and damage to the said meat if it in fact occurred since the same arose from heating, decay, putrefaction and the nature of the goods."

6. It is further shown to the Court that the said spoiling and loss of libellant's meat, if it in fact occurred, falls within and is covered by the exemption of liability contained in the Act of Congress of the United States, approved on the 13th day of February, 1893, which is made part of the said Bill of Lading in the following clause, to wit: "It is also mutually agreed that this shipment is subject to all the terms and provisions of and all

the exemptions from liability contained in the Act of Congress of the United States approved the 13th day of February, 1893."

All and singular, the premises are true.

Wherefore, the respondent prays that the Court will pronounce against the libel aforesaid and condemn the libellants in costs and otherwise right and justice administer in the premises.

GEO. H. HIGBEE,
for International Nav. Co.

Eastern District of Pennsylvania, *ss:*

Geo. H. Higbee, being duly sworn, deposes and says that he is Manager of the International Navigation Company respondent and that the facts set forth in the foregoing answer are true to the best of his information, knowledge and belief.

Sworn and subscribed before me, this 17th day of June, A. D. 1895. } GEO. H. HIGBEE.

JOHN J. WILKINSON,
Notary Public.

MARTIN FULLER & CO.	**United States District Court, Eastern District of Pennsylvania, In Admiralty, No. 16, of 1895.**
vs.	
STEAMSHIP "SOUTHWARK."	

May 15, 1896.

Depositions on the part of the respondent, taken before T. A. FENSTERMAKER, Esq., Notary Public for the Commonwealth of Pennsylvania, residing in the City and County of Philadelphia, at the office of Messrs. BIDDLE & WARD, No. 505 Chestnut Street, on Thursday, May 15, 1896, at 3 o'clock, P. M.

Present:

HORACE L. CHEYNEY, Esq., for Libellant.

J. RODMAN PAUL, Esq., for Respondent.

A. GRAY KILBURN, AFFIRMED.

By MR. PAUL:

Q. What is your residence and occupation?

A. My residence is No. 1331 Airdrie Street; occupation mechanical engineer.

Q. What is your business at the present time, and where are you engaged in business?

A. I am engaged with my father as his manager, The J. K. Kilburn Refrigerating Co. Then I am running a business myself, part of it, of building refrigerators.

A. Gray Kilburn.

Q. And your father's business and that of J. K. Kilburn Company is building refrigerating machines?

A. It is called just J. K. Kilburn, known as the Kilburn Refrigerating machines.

Q. Those were the machines invented by your father?

A. Yes, sir.

Q. Is your father unwell at the present time?

A. Yes, sir.

Q. And are you familiar with these refrigerating machines?

A. Well, I have been connected with my father since 1889; this last time and before that I was with him from 1876 until 1880.

Q. Have you supplied these machines to steamships for the purpose of cooling or keeping beef cool for transport?

A. A great many. I have had the personal supervision of the whole installation.

Q. Did you instal the machine used on the steamship "Southwark" in July, 1894?

A. No, sir.

Q. Are you familiar with that machine?

A. Yes, sir; I put that same machine, if I am not mistaken, upon the "Alaska" and it was removed from the "Alaska" to the "Southwark."

Q. But not by you yourself personally?

A. I did not; that was done by the English Company.

Q. Please look at this photograph marked "Exhibit No. 1, T. A. F." and state whether that is a photograph of the machine used on the "Southwark," which you have mentioned, or one similar to it?

A. It is a photograph of a similar one; they were both built after that design.

Q. And the character of the machine is precisely the same?

A. Yes, sir; exactly.

Q. Looking at the photograph please explain, beginning with the letters there, what the various parts are briefly?

A. "A" is the steam engine, or the motive power, you might call it. "B" and "B-1" are the compression cylinders.

Q. And they are used for what?

A. Compressing the ammonia gas; they are known in technical phrase as a compressing cylinder. "C" is the condenser, "D" is the refrigerator; "G" is the bonnet of the condenser and "G-1" is the bonnet of the refrigerator. I see here that the base plate is marked "F" but that has nothing to do with the case; "E" is the delivery of the circulating pump, which has nothing to do with the case.

Q. Please tell us, referring to these various parts that you mentioned, how the work of refrigerating is accomplished—just in a brief, popular way, if you can, so that the Court may understand it?

A. I could explain it to you, gentlemen, better if I had my pencil, because it is really a cycle within a cycle, or a wheel within a wheel. The ammonia and the brine, you may say, to make it plain, are simply the same as a carrier, the same as you would carry shells for carrying flour. The one carries cold, the other carries the heat, if you could understand that. The ammonia, for instance, is compressed, we will say, first, in the compresser "B-1." We will start there. In that compressed state, which also raises the temperature, it goes to the condenser "C." At the condenser the cold water or the sea water which passes over that condenses it; in other words, it reduces the temperature from very hot to

the temperature of the incoming water. And that is the limit. (Whatever the temperature of the water is that is the limit to which we can cool the room, and that depends a great deal on the pressure.)

Q. Or the pressure depends a great deal upon the water?

A. Yes, sir; as I was going to say, you take that ammonia at atmospheric pressure and you get a temperature below zero. Now, if that water is 70 or 75 degrees —I could tell by reference to my tables, your pressure is something enormous. It may run up to 210, 215 or 220 pounds. It depends entirely upon the condition of your water. You see, if you had water, we will say at zero, you would not need any refrigerating machines; if you had water at 30 degrees, you would have the same effect as ice. If you had water at 70 degrees the first thing the ammonia does is to cool itself down to the cooling temperature, say at 32, at 70 degrees then it would require you to take out forty degrees before you could use it. So that the atmospheric pressure of ammonia, or rather at 15 pounds pressure, and under a temperature below zero, you can imagine that you would get an intense pressure to reduce the water to 73 or 75 degrees.

Then to revert; the ammonia is first compressed and forced into the cylinder with this water which cools it. Then it is in a liquid form. Between the compression and the water that gas is liquified. Allow that to go through an expansion valve into the refrigerator "D," there we allow it just enough to expand and the minute it strikes the hot brine, which surrounds the coil in "D," that acts as heat to a boiler. The heated brine on that liquid makes it much hotter than the vaporizing point. It vaporizes below zero which is the same as 212 degrees of water. It causes it to vaporize and makes a gas again

and in vaporizing it must necessarily absorb the heat from the surrounding object. Then that goes back to the compressor and is used over and over again.

Q. Meaning the brine?

A. The brine is circulated through the rooms.

Q. That is by pipes leading from the refrigerator where it is constantly cooled, it is sent to the room, and it comes back in circuit?

A. Yes, sir; you would understand my statement better, if you would allow me to just explain that graphically to you. I will explain it by drawing on the back of the photograph, "Exhibit 1." Here are three circles. We will begin here at the cold room "1." Now we will call this place "R" the refrigerator, we will call "C" the condenser, and this outlet "D" we will call the discharge, and we will call the inlet "I." Now I just want to show you my idea of how the cold air is discharged and then you can understand my explanation much better. This inlet pipe "I" goes to the cold storage room. That comes in here through the refrigerator "R," and is cooled, goes back through the rooms and comes back here and loses its heat. The condenser "C" takes the heat away from it so that the cold brine goes through the rooms and comes back heated; the condenser takes that heated brine, passes it into the refrigerator and cools it. In the meantime the refrigerator is getting hot. The ammonia that passes through the condenser is passing all the time through the circulating water and the circulating water carries it out through the discharge. So you get the cold in the rooms delivered to the refrigerator, the refrigerator takes that extra heat and delivers it to the condenser and the circulating water takes the heat and passes it right overboard.

Q. You have spoken of cold air; do yon mean cold air or brine?

A. Gray Kilburn.

A. Brine; it is the same thing, you see, the brine gets cooled in the refrigerator and goes through the rooms and then gets heated up.

Q. When you say rooms, you mean cold storage rooms wherein the meat is?

A. Yes, sir. Then it goes back into the refrigerator and becomes cooled. We do that by vaporizing the ammonia from the condenser in the refrigerator. There the ammonia absorbs that heat. Now, we want to take that heat from the ammonia. The water we will say is 70 degrees.

Q. That is done by means of water around the coils?

A. Around the condenser, as I was going to say if the water was 70 degrees, you cannot cool it below 70. So consequently, we will say it is 70, we will have to arrange it by compression of the ammonia gas, we will say to 100, so as to take the thirty degrees out of it.

Q. Therefore, the compression pump is put into greater operation when the water around the ammonia is of a high temperature than if it is of a low temperature?

A. Exactly; that is just what I was trying to explain to you, because the hotter the water the more work there is on the pump and the higher your pressure.

Q. What is the purpose of "G" on the picture "Exhibit 1" which you have already mentioned?

A. The coils inside "C" open into that drum or bonnet which is marked "G" and has a direct connection with the compresser. You see on this machine in the photograph the water is surrounding the ammonia coils, there are three coils and they all open up into the one bonnet and that goes direct to the compressor. The same way with "G," the refrigerator coil.

Q. How is that fastened on, that bonnet, to the condenser?

A. It is bolted on with a steel head with a rubber gasket between; I could not tell you how many bolts.

Q. On that condenser, when the pressure is great, whether from the high temperature of the water or any other cause, what would be naturally the weakest part?

A. The joint.

Q. Can that be avoided, or is it always so where joints have to be used?

A. It is always so. You see, that coil is one continuous coil, naturally the pipe is not as weak as the joint, no matter how fast you make it.

Q. The joint, therefore, must be the weakest part?

A. It is the weakest part.

Q. According to the report of the chief engineer of the Steamship "Southwark" for the voyage from Philadelphia to Liverpool, beginning July 4, 1894, it is stated that this refrigerator machine on the "Southwark" was disabled while the vessel was about Reedy Island, going down the river, from a leak starting in the bonnet on the top of the condenser, that a new joint was made and put on, and afterwards, on the 5th, shortly after starting the machine, the after compression pump gave a heavy knock, and on examination it was found that both connecting bolts were broken, connecting rod bent and compression piston cracked, also afterwards the crankshaft was found bent, and during the delay necessary for repairing these troubles the temperature in the boxes rose?

A. To what degree.

Q. 42 degrees?

A. How long was it in that condition?

Q. About two days. Three days it is put here; I suppose that is more than two days. From that statement, and from your knowledge of the machine, can you judge what those accidents or either of them were due to?

A. I should say that that was due to the hot water.

Q. What was the direct cause?

A. If you have got hot condensing water you get a very high pressure, and, if you take water at 73 degrees, you would have a pressure there—I could not say what it would be. I do not remember, and I do not want to say the figures, but you would have a very high pressure, which would be liable to cause that trouble on the weakest part of the machine. As a rule, you know the temperature of the ocean is about 64 degrees.

Q. What temperature would you think sufficient to make this trouble?

A. Anything over 72 degrees, 70 to 73 degrees would cause it.

Q. How would that act? You have explained it before, but I want to have it more clearly. How would that hot water act in causing the trouble alluded to in the report?

A. Why, simply in this way, as I told you before, we will say the water at 73. If the brine came in there of course the ammonia will take the temperature of the return brine before it strikes the pump. Then, if you have got water at 73 to cool it, we have got to raise the compression so much above 73 to get the heat out, and, in order to do that, it raises the pressure.

Q. In other words the compression must be in inverse ratio with the temperature?

A. Exactly. And they were evidently wanting to get the work done; they were pulling the machine for all there was in it and they wanted to take eight or ten or twelve degrees of heat, whatever it was, out; and they had a pressure on that that was abnormally high; and it might come almost instantaneously and then drop right down after it got equalized.

Q. Is there any connection between the leak in the bonnet and the cracking and bending of the rods and bolts connected with the compression pump?

A. Only the intense pressure it had to work against.

Q. The intense pressure of the pump would both affect the parts of the pump itself in its working, and also would affect the bonnet upon the condenser into which it was pumping condensed ammonia?

A. The condenser carrried a larger load than the machinery would carry; as I say, that might have been only instantaneous. It might not have had any endurance at all, and then equalized, and then it would all come in again with a flush.

Q. Is it possible to avoid that contingency?

A. We have never been able to except by cold water.

Q. Can you get cold water usually in July?

A. As a rule, it is not as hot as that. If you take a look at the record of the degrees of the Gulf Stream, it will hardly be as hot as that even in summer.

By Mr. Cheyney:

XQ. What figure did you mention?

A. The temperature as taken down at the lightship was about 73 degrees.

XQ. What lightship is that?

A. I think it was some bank light that they have down the Delaware; I think it was 73 5-10 degrees.

By Mr. Paul:

Q. How is the temperature of the beef when put on board on one of these vessels in one of these refrigerating rooms?

(Objected to as the witness has not been shown to be competent to testify on the subject.)

A. I suppose about 42 degrees.

Q. Have you watched the workings of your refrigerators on vessels?

A. A great many times.

Q. Have you taken voyages with them?

A. Yes, sir; several.

Q. Have you noted the temperature of beef or other articles on coming in and on going out?

A. A great many times.

Q. And have you considered what the temperature of various articles should be on being put into the box?

A. Yes.

Q. That being so, what have you to say about the temperature of beef?

A. I was going to say, the average boxes, you know, they are brought in these cold storage cars; they very seldom cool them below forty degrees; they average 42 degrees.

Q. If that meat is brought there above 42 degrees in hot weather, what might be or what would be the effect of its temperature on the voyage?

A. Why, if it is brought at 42 degrees, in order to get it down to 32 degrees, which is the normal temperature of carrying it, you have got to take ten degrees of heat out of it before you can do anything with it.

Q. And if it is more than 40 degrees, you have so much more to take out?

A. Yes, sir.

Q. What is your refrigerator intended to do?

A. Carry it at 30 degrees.

Q. And what is it supposed to do in reference to the temperature of articles put in there?

A. To reduce them to that temperature, and still keep it at 30 degrees; but that is a question of time, when it is not put in at the proper temperature.

Q. And, is there any risk in hot weather especially, if it is not put in at that temperature?

A. Yes; bacteria or rather the germ of putrefaction.

Q. In other words, in order to carry beef successfully, you must have a certain temperature to start with?

A. Yes. If you will allow me to make a remark, the germs of putrefaction are dormant at 35 degrees. Meat will never spoil if you keep your rooms at 35 degrees, but you cannot make bad meat good if it is bad before it is put in.

Q. And if the temperature rises above 35 degrees?

A. These germs, especially on very hot days, accumulate with wonderful quickness.

Q. And those germs may and do exist if it is hot when put in?

A. Yes, sir; immediately, no matter how much you freeze them, just as quick as beef thaws they show in a minute.

Mr. Cheyney states that Mr. Paul had produced a certain report made by the engineer of the "Southwark," Mr. Doran, but that this is not the report Mr. Cheyney called for, that he has already in his possession a copy of this report, but is informed that there is another report that was made.

Mr. Paul states that he knows of no other report, and has never heard of any other.

Cross-Examined.

By Mr. Cheyney:

XQ. (Exhibit 1, shown witness.) Is this a photograph which you have produced here, or what is it?

A. This is a photograph of that type of machine.

XQ. Where is this machine?

A. The machine at present, I believe has been taken taken off the "Southwark" and put on one of the other boats.

XQ. I am speaking of this machine of which this photograph is taken?

A. I could not say which machine that was; we built quite a number of these machines of which this is a photograph of that type of machine.

XQ. It is a photograph of a drawing of that type of machine?

A. Not a drawing. It is an enlarged photograph of that type of machine; we only had the one photograph, that was taken in Liverpool.

XQ. I understand you to say that the machine that was on the "Southwark," at the time, in July, 1894, had previously been erected on the steamship "Alaska"?

A. I think so.

XQ. And was transferred from the "Alaska" to the "Soutwark" in England?

A. Yes, sir; it was either the "Alaska" or the "Spain;" I am not positive which of the two boats, but it was transferred from another boat.

XQ. Do you know when the machine was originally built?

A. I do not remember off hand; I could very easily tell by going over to the office.

XQ. You know nothing about the manner in which it was transferred or your firm had nothing to do with setting it up in England on the "Southwark"?

A. That was done with the English branch of our house. In one sense, it is not our house now. Father started the English business, and then we sold it.

XQ. Do you know how long this refrigerator plant had been in use on the "Southwark" before the voyage in question, in July, 1894?

A. I think the voyage in question was the 3d voyage, I am not positive.

XQ. You are familiar, of course, with the practice of carrying fresh meats in transatlantic steamers?

A. I am.

XQ. And that has been done for quite a number of years past?

A. A great many, since 1886.

XQ. And it is a business which is carried on successfully, of course?

A. Yes, sir.

XQ. Does the care of machinery of that kind, a refrigerating plant on a vessel, require any extraordinary skill?

A. No, sir.

XQ. Practically, there is not very much difference between the refrigerator plant on a ship and those on shore in the workings of them?

A. No.

XQ. They all work on the same principle, and about the same degree of skill and care is necessary on each one?

A. Exactly.

XQ. And with ordinary skill and care there is no difficulty in keeping the temperature reduced to such a degree as to carry fresh meats and other perishable goods across the Atlantic Ocean even in hot weather?

A. Providing you get the water.

XQ. There is always plenty of water going across?

A. It makes an awful lot of difference in the temperature of the water.

XQ. And there is nothing then, barring the difference in temperature of the water. There is nothing more than ordinary skill and care required in keeping the temperature down to a proper degree?

A. No, sir.

XQ. I understood from your testimony that the only

difficulty in carrying cargoes, which are placed in the cold storage rooms, where the temperature of the meat is over 35 is the reduction of it to a proper degree; in other words it will simply take a little time to reduce it to the proper degree?

A. Well, as far as the carrying of the cargo, that is correct, but not as far as the turning of the meat out at the other end. Understand, when I say that, it is an extra load on the machine if it has not been cooled down to nearly the temperature of the boxes. If it is warm when it goes in, or has been exposed, it is very liable to have these bacteria of putrefaction in it; after it has once been closed up and they are gone, and it is opened up in London, it shows up a great deal quicker than if it has been kept at the same temperature.

XQ. If there has been any putrefaction or deterioration, but it has been reduced to a proper degree on board the vessel?

A. Exactly.

XQ. But the mere fact that it has a higher degree when placed in the refrigerator box does not have anything to do with it?

A. It is so much more of a load on the machine until it is pulled down.

XQ. It simply increases the strain on the machine?

A. Yes, sir; exactly.

XQ. And, of course, all fresh meats, when originally placed in a cold storage wareroom, are of a high temperature?

A. Yes, sir; naturally.

XQ. And do you know whether, after the voyage in question, any change was made in the refrigerating plant of the steamship "Southwark"?

A. I could not say.

XQ. Do you know whether or not any repairs were

made or whether it was overhauled?

A. I could not say positively; only by hearsay.

XQ. You had no charge of any work of that kind yourself?

A. Nothing whatever.

XQ. This is a rather technical subject and you must excuse me if I ask you any foolish questions?

A. I will help you out if I can; that is what I am here for.

XQ. What did I understand you to say would be the cause of the bonnet on top of the condenser leaking?

A. Undue pressure.

XQ. What pressure should that be able to stand—what is the maximum pressure they are supposed to be able to withstand?

A. We figure our machines run about 150 to 200 bls. of pressure.

XQ. Is the condenser tested at any particular pressure or not before used?

A. The condensers are all tested at about 250 bls. under water.

XQ. And that is supposed to indicate an ability to stand a pressure of 250 lbs.?

A. Yes, sir; you understand, you speak of the condenser. I am not now speaking of the bonnet or packing; I am simply speaking of the shell of the condenser.

XQ. What pressure is the bonnet on the top of the condenser supposed to withstand?

A. We have never tested them altogether, but it is supposed to have a large factor of safety and be able to stand from 150 to 200 lbs. of pressure without any trouble.

XQ. Is there the same pressure on the bonnet on the top of the condenser as there is on the condenser itself?

A. There is more pressure than on the condenser itself, because it is on the coils. The coils are all tested to 500 bls. and we have the direct pressure from the coils on the bonnet.

XQ. And what could cause the increase in the pressure either upon the condenser or bonnet on top of the condenser?

A. Principally a hot room and hot water. There are a hundred causes that might cause it, but they are the principal ones; but the others, with all due respect, you cannot use; there is no possibility of them coming up in this suit. I have had so much experience, I know where the trouble was. The trouble was with the water.

XQ. That, of course, is simply your opinion from what you have read?

A. Not at all, it is my opinion from what I have worked through.

XQ. Not in this particular case, simply your experience in general?

A. I have had no experience in this particular case. I have just been asked a plain question. I was not in this case; from my experience with machines generally, that is the trouble.

XQ. Have you seen the refrigerating machines on the "Southwark"?

A. Yes, sir.

XQ. Is there a separate machine for the ship's storeroom?

A. Yes, sir.

XQ. And, of course, the temperature of the water would have the same effect upon the refrigerating machine generally in the ship's storeroom and in the commercial boxes?

A. No; it is a different type of machine.

XQ. What type of machine was that in the ship's storeroom?

A. That is what we call the American machine, that we build on this side of the water.

XQ. Who built that, do you know?

A. I did.

XQ. Is it your own?

A. Let me think; I beg leave to defer that. I cannot really say whether that provision room machine was one of the little vertical or one of the horizontal American machines. It is so long I cannot remember. Mr. McKernan could tell. If it was a vertical machine it was an English built machine; if it was a horizontal machine, it is what we call a bar machine, built in this country. It is a different type; the condensers and refrigerators are built differently.

XQ. That is what you call the bar horizontal type, that with the water at the same temperature, you have a lower temperature?

A. No, sir; we have no lower temperature, but we have made better provisions; in other words, it is the same equivalent, but in one case we have the ammonia in the coils, in the pipe and in the other case the ammonia, if I remember right, is in a four feet shell. You take the area of a two inch pipe and the area of a four feet head, and there is a great difference.

XQ. I am more interested in results; do I understand that the same temperature of the water, using what you call the bar horizontal type, that generally a lower temperature would be the result, or not?

A. No; not at all, you would get exactly the same results, but you could handle it better with one type of machine than with the other.

XQ. Now, tell us just what you mean by that?

A. Well, how can I explain that. I could explain it in this way, although it is not very graphical, you can pull a bigger load with two horses than with one. The machine is built to handle that pressure in a better manner than the English machines.

XQ. In other words, it is a better machine, is that what we understand?

A. I do not think it is any better, we get the same results.

XQ. Using the water at the same temperature, what would cause a difference of several degrees between the result of the two machines?

A. There would be no difference in the result at all; they both work exactly the same; as I said before, one is less liable to leak than the other; that is all the difference; you would have exactly the same effect.

XQ. Then, if there was a difference of several degrees temperature in the result, it would indicate that there was some leak in the machine from which the higher temperature resulted?

A. Not at all.

XQ. What would it indicate?

A. The working ammonia would be precisely the same in both cases, but the arrangement is such that there would be less liability to a leak in the bonnet in the American machine than there would be in the English machine.

XQ. Suppose we start out with certain things the same; we have the temperature of the water the same, we have the two machines, and the result of these machines using that water at the same temperature is that in one case you have, say, a resulting temperature in the storeroom of 36 degrees, and in the other case of 42 degrees?

A. You are wrong, that is not what I meant to express at all.

XQ. Then, how can you explain the difference in the result of those two machines?

A. If that was the case, I would say that one was bigger than the other; that is not what I have tried to explain to you. You get exactly the same efficiency from one pound of ammonia, no matter what kind of a machine you use. But you can build it so that there is less liability of giving you trouble. But one pound of ammonia will not do any more for you than it will for me, and not any more in one machine than in another of the same equal size.

XQ. Suppose we do have the same temperature of the water the two different types of machines, and the result in one case in the store room is a temperature of 36 and in the other case of 42, that indicates either that you have a machine not large enough for the room, or that the machine is leaking, does it not?

A. No.

XQ. What does it indicate?

A. That would indicate that both machines did not have the same work put on them; that is, they are not of equal capacity. Supposing you take two machines of the same capacity, the same water, the same temperature, and the same amount of work, you would get exactly the same results.

XQ. And then I understand that if with one machine the temperature in the store room is 36——

A. (Interrupting.) That is a small room and large machine for that purpose, you see, the machines are not built in proportion to the two rooms. Now the provision room machine for the little box does the cooling. It is a large machine for the size. I do not know the size of either, but that must be so if that is cooling it more. Now you take the other one, and the commercial boxes and you have got an enormously large space to cool. If

you take and figure it out you will find that the commercial boxes with the same degrees of temperature of water had probably a great many cubic feet to cool in comparison with their cylinders than the smaller machines. You cannot make any comparison there at all.

XQ. In other words, your idea is that that difference in temperature would result from the fact that the machine in the smaller room is proportionately larger than it is in the large room?

A. That is it exactly. And, as I said before, a pound of ammonia will not do any more for you than it will for me, it will do the same with every machine. But you can handle that ammonia with less risk but with not more efficiency.

By Mr. Paul:

Q. It depends on the size of the room in which it is to work?

A. It depends entirely upon the capacity of the load that you put on it. You may take a one horse team and put a ton on it and you may take a two horse team and put three tons on it. There is more load on the two horse team than on the one horse team in proportion.

By Mr. Cheyney:

XQ. And in all other respects the effect upon the two machines with the temperature at the same degree would be practically the same?

A. The same absolutely, sir. It is a law of nature; it is not a law of man.

XQ. The report, as Mr. Paul read it to you, states that at a certain time the after compression pump gave a heavy knock and on examination it was found that both connecting rod bolts were broken, connecting rod bent and the compression piston cracked; what would cause those injuries?

A. Pumping up too much a load, hammering against too much of a head pressure. That would be the same trouble that broke the joint in the bonnet.

XQ. I understand you know nothing about the machinery in question upon the steamship "Southwark" after the voyage of July, 1894?

A. Well, not definitely; only hearsay.

XQ. Of your own knowledge, I mean?

A. Not of my own knowledge.

XQ. Would not any injury affecting the working capacity of the refrigerator plant make a difference in the temperature which would result in different machines using the same water?

A. Make a difference where?

XQ. In the storeroom?

A. Certainly; if the machine stopped.

XQ. Suppose, however, that the bonnet on top of the condenser were not actually stopped but leaking somewhat, would not that have a tendency to affect the temperature of the room?

A. No; not as long as the machine was running. They could not run it if it leaked very much.

XQ. Suppose it leaked a little bit?

A. They would stop the running and fix it immediately; they could not live in it; it would suffocate them.

By MR. PAUL:

Q. Why?

A. That ammonia gas is so pungent. You cannot live in a room at all with a leak in it. You have got to stop the machine and fix it. It is a good deal worse than Philadelphia city gas, that ammonia gas.

By MR. CHEYNEY:

XQ. Do you remember how many of these refrigerating machines were working on the commercial box of

the "Southwark"—was there more than one or only one?

A. I think there was one large machine.

XQ. You are speaking generally?

A. That machine, that was all that there was on the refrigerating boxes.

XQ. There was possibly a small one on the ship's storeroom?

A. Yes, sir.

XQ. And you think was larger or smaller than this one in question?

A. I know—excuse me on that—I do not know the relative size of the two boxes. The little machine might really have been larger for the box or even smaller for the box than the other machine. I do not know the relative size of the boxes of the two rooms.

By Mr. Paul:

Q. I understood that you said you could not make any comparison without knowing the proportion of the boxes at all?

A. No, sir; I could not.

Q. Did you ever see this machine after it was installed on the "Southwark?"

A. Yes, sir; I saw it after it was installed on the "Southwark."

Q. What was its condition when you saw it?

A. It seemed to be all right; I could not give any exact date, but I saw it on the "Southwark." It has been removed to another boat since.

By Mr. Cheyney:

XQ. Do you know whether that was before or after July 5, '94?

A. It was after the trouble.

By Mr. Paul:

Q. That it was removed, or that you saw it?

A. That I saw it.

Q. Had you seen it before?

A. No, sir.

Q. Was there *any defect* in construction and in the installation?

A. Excuse me. I will not say that it was after. I was down there on the boat, and I do not remember whether it was the second or third voyage. I could not say as to that correctly.

Q. You may have seen it before then?

A. I could not say whether I did or did not. I have seen it twice. I was down there once and I was down with Mr. Paul.

Q. Was there anything in the structure or installation of that machine which was wrong or improper?

A. I could see nothing and I examined it carefully.

Q. Therefore, although you did not install it, I understand you to say, that, so far as you could see, it had been properly installed and erected in that vessel?

A. Yes; if that was the machine that was on the "Alaska," I put it up myself. I do not remember whether it was the same. I erected that myself, and now she is on another boat and they say she is giving the finest satisfaction of any one on the fleet.

By Mr. Cheyney:

XQ. That is all hearsay, of course?

A. That is what the engineers say; I have not tested it but that is the reports.

XQ. You do not know whether or not the machine has been changed or overhauled in any way since the time this accident occurred, though?

A. They tell it has not.

XQ. But you do not know of your own personal knowledge?

A. No, sir; I do not, only what Superintendent Doran tells me, not changed at all, simply transferred.

XQ. Did you overhaul or make any substantial additions from your office?

A. No, sir; never put our hands on it, and I had charge of all our refrigerating work.

By Mr. Paul:

Q. Is there any question of superiority between the English and American machines which you have been speaking of?

A. The American machines are of later date.

Q. How long have they been used, the American machines?

A. We have been building our American machines, I think it was five years ago that we put the first machine up?

Q. So that in 1894, they were only in use three years?

A. Yes, sir; if I remember right, I think it was in 1891 or 1892 I set the first machine on the "Indiana" or my father did; I was over in Europe at the time and he came over here to do it.

By Mr. Cheyney:

XQ. Of course, a machine may be properly constructed and properly installed, and yet sometimes it may not work very satisfactorily; is not that so?

A. Yes.

XQ. With possibly no defect in the machine itself?

A. Yes.

XQ. That very frequently happens?

A. Yes.

XQ. I understand, personally, you know nothing

about the temperature of the water during the voyage in question?

A. Simply from the affidavit we had from these light-house people; that was all; they sent up the government report.

JOHN F. McKERNAN, Sworn.

By MR. PAUL:

Q. What is your business?

A. Superintendent of the repair shops of the International Line, foot of Washington Avenue.

Q. How long have you been in that position?

A. Five years.

Q. What was your business before that?

A. Sea going engineer.

Q. How long did you go to sea?

A. Sixteen years.

Q. And how long as first engineer?

A. Chief engineer about ten years.

Q. What is your duty with reference to steamers going to and fro from Philadelphia on that line?

A. My duty is to superintend all the repairs, examine the machinery which may be required and put the ship in good seaworthy condition as to machinery.

Q. And if work is to be done by people on the ship, you also supervise that?

A. Yes, sir.

Q. Are you familiar with the refrigerating machines for cooling fresh meat that were carried on the steamers of the American Line?

A. Yes, sir.

Q. You know their character and structure?

A. Yes.

Q. And have overhauled them and repaired them?

A. I did.

Q. Do you remember the voyage of the steamship "Southwark" leaving here in July, 1894, on which it was afterwards learned that there was trouble with the refrigerating machine?

A. Yes, sir; I remember that voyage.

Q. Do you remember when that machine had been installed on the "Southwark"?

A. I think that was installed about—it was installed in Liverpool, that machine, they had put it in in Liverpool about, I think, it was the second voyage that the ship made; that was in February, 1894, I think.

Q. What was the weather in early July, 1894?

A. Very warm.

Q. Did you inspect the refrigerating machine on that occasion before she sailed?

A. Yes, sir.

Q. What was its condition?

A. It was in good condition.

Q. Was there anything wrong with the bonnet at the time she sailed?

A. No, sir.

Q. How long before the sailing had you inspected it?

A. Do you mean from the outside?

Q. Yes.

A. About half an hour before she sailed. I left the refrigerating room about half an hour before the ship sailed?

Q. Was there any leak then in the bonnet?

A. No, sir.

Q. Would you have known or could you have known of it if there had been?

A. Yes, sir.

Q. How?

A. By the smell.

Q. Was there anything apparently wrong with the pump or piston?

A. Nothing at all.

Q. Was it working properly?

A. It was working when she left the dock.

Q. Did you see the machine afterwards?

A. Yes, sir; I took it after that out of the ship.

Q. How long afterwards was it taken out?

A. It was taken out, I believe, last May, 1895.

Q. It continued nearly a year on the "Southwark" afterwards?

A. Yes, sir.

Q. Did the "Southwark" continue to come to this port?

A. Yes, sir.

Q. Was there any change made in the structure or nature of the machine?

A. No, sir; nothing at all.

Q. On what vessel was it afterwards placed?

A. It is now on the "Rhynland."

Q. Did you put it on the "Rhynland"?

A. Yes, sir; I put it on the "Rhynland."

Q. Was there any change in its parts?

A. No; we simply took the machine of the "Southwark" and placed it on the dock and transferred it to the "Rhynland"; of course, taking part of the pipe connection necessary to get it out of the engine room.

Q. Do you know of any trouble or reports from it on the "Rhynland"?

(Objected to as immaterial.)

A. I do not know of any reports. I know of the reports made of the machine after it went on the "Rhynland."

Q. Were they good or favorable or how?

(Objected to.)

A. Oh, yes; very favorable.

Q. Was the machinery overhauled by you any more than what was made necessary by transferring it?

A. If we took the pipe apart, we made a new joint with it; if we took the machine apart to take it out of the engine room, we made a new joint too.

Q. Had it been overhauled by you or your shop on the "Southwark," before it was transferred?

A. No, sir.

Cross-Examined.

By Mr. Cheyney:

XQ. Did I understand you to say that this refrigerating plant was not overhauled on the "Southwark" from July 5, 1894 up to the time it was transferred to the "Rhynland"?

A. No more than what would be necessary in any event on the ship coming in. There may have been little pipe joints leaking or the brine pump or the circulation pump or the engine brasses may have been worn slack, no more than any ordinary engine would take under ordinary circumstances.

XQ. You are sure that was the only work done to it?

A. That is all I know of

XQ. Would there be work that you do not know of?

A. No.

XQ. Will you tell me why no perishable cargo was carried in the commercial room, why the refrigerator plant was not used on the next voyage after the one commencing at Philadelphia, July 4, 1894?

A. There was meat carried on that voyage in August; she left here on the 4th or 5th of August.

XQ. Who was the engineer in charge of the refrigerating plant on the "Southwark"?

A. Mr. Paul.

XQ. Mr. Paul was the chief engineer?

A. Yes, sir.

XQ. Who had charge of the refrigerator?

A. He had charge of it.

XQ. But who was the engineer in charge of it?

A. I forget now who that was. There was a man there, I think his name was Shinn.

XQ. Was he the first or second engineer, or how?

A. He had a very subordinate position. The machine is in charge of the chief engineer entirely. The man on watch simply looks after the machine, and if anything goes wrong at any time, any trifling thing, the chief engineer is called upon to look at it; it is in his charge entirely.

XQ. How long did Mr. Paul remain on the "Southwark"?

A. I think he stayed three voyages after that, about, I could not say for certain, of course; I should say; speaking from memory, three voyages.

XQ. Who succeeded him?

A. Mr. MacDonald.

XQ. Do you mean to say that this plant was not thoroughly overhauled and repaired after Mr. MacDonald went on the vessel?

A. No.

XQ. Are you sure of that?

A. Well, as sure as I can be from memory. If it had been, I think I could have remembered it.

XQ. Mr. MacDonald would know as much about that as anybody else, or more probably?

A. I guess he would not know any more than I would know about it.

XQ. About when did Mr. MacDonald go on the "Southwark"?

A. I think he relieved Paul in three voyages; I think, I am not certain.

XQ. Where did Mr. Paul go?

A. He is in Liverpool now.

XQ. What is he doing?

A. I could not tell you what he is doing.

XQ. Why did he leave the service of the company?

A. I do not know.

XQ. Where is Mr. MacDonald now?

A. He is chief engineer of the "Indiana."

XQ. I wish you would tell me particularly what particular examination you made of the refrigerating plant on the "Southwark" before she left Philadelphia, July 4, 1894?

A. Well, I speak from memory; I think we did a little work to the brine pump; we had a few pipe fittings, connections or so, and I think we overhauled the circulating pump, but the repairs were very slight.

XQ. What is your duty exactly with the American Line?

A. Superintendent of the repair shop.

XQ. And under whose instructions did you make the repairs?

A. Mr. Doran.

XQ. Of course, making such repairs as Mr. Doran instructed you to make?

A. Yes, sir.

XQ. The chief engineer, if anything is wrong, reports to Mr. Doran?

A. Yes, sir.

XQ. Consequently, it is not your business to make an examination of the vessel to say whether or not she requires any repairs or not?

A. It was my business at that time.

XQ. What was your position at that time?

A. The same as it is now, excepting that the repair shop is being transferred to an independent company.

XQ. What do you mean by that?

A. The International Navigation Company ran the repair shop themselves; since that time it has been in the hands of the Riley Repair and Supply Company.

XQ. But you were simply superintendent of the repair shop?

A. Yes, sir.

XQ. And it was not your duty, when a vessel arrived in port or after she arrived in port, to go on board and see whether she required repairs or not; was it?

A. Yes, sir; it was.

XQ. What is Mr. Doran's business?

A. Superintendent, supervising ships; the repair list is handed to me when the ship arrives, and it is my duty, or was at that time, to meet the ship in port and confer with the chief engineer. He telling me then verbally what he thought would be required to be done, and it was my duty at that time to go down into the engine room and see for myself the state of the machinery.

XQ. Do I understand that you would make repairs without regard to the instructions of the chief engineer?

A. I would make repairs, if I saw anything wrong; I would report to Mr. Doran, and with his sanction make those repairs.

XQ. What time did the "Southwark" sail on that morning, do you remember?

A. I could not tell you the exact time, it was in the neighborhood of 11 o'clock.

XQ. What time were you in the refrigerating room?

A. About half an hour previous to that time.

XQ. How do you fix that time?

A. Do you mean 11 o'clock?

XQ. I mean at the time you were in the refrigerating room?

A. Because I was in there looking after it. I left the engine room, went around everything, the boilers and engines and came up on the top platform to where the refrigerators are, went in and looked as I always did and do yet, I looked in there.

XQ. You have an indistinct recollection of having done it on that particular occasion?

A. Yes, sir; I have a recollection of that particular date.

XQ. Or do you speak from what has been your habit of doing?

A. No, sir; I have a recollection of that particular day.

XQ. What fixes that as to your recollection at the time?

A. I had my wife on the dock; there was a little crowd of people there; I recollect saying to her when coming ashore that I had just come out of that refrigerating room.

XQ. On that particular voyage?

A. Yes, sir; on that particular voyage.

XQ. That is the only way you remember particularly that you were there a half an hour before the vessel sailed?

A. I am quite certain I was down there.

XQ. Generally do you make repairs up to the last moment of the vessel sailing from port?

A. Not generally, but we make an examination, that is, we go down into the engine room. Sometimes I go down for the purpose of bidding the engineers good-bye at their stations, and as a rule leave them there standing by the engines when the ship is going out of the dock.

XQ. The engineer in charge of the refrigerating plant would be probably as apt to know about this condition at the time of the departure of the vessel from port as anyone else; would he not?

A. He ought to.

By Mr. Paul:

Q. You have had your attention called to this voyage a long time since, have you not?

A. Yes, sir.

Q. And have spoken to me and other persons about it?

A. Yes, sir; I remember particularly that voyage on account of it being the 4th of July, and the following voyage I went down the river with the ship in August, with the cargo of beef on board at that time. I went down, knowing the trouble they had the voyage previous, to see whether all was right, and left the ship at Reedy Island, down the river.

Mr. Cheyney formally objects to the engineer's report produced, and states it is not the one called for.

Deposition on the part of Respondent, taken at the office of Messrs. Biddle & Ward, 505 Chestnut Street, on Thursday, November 5, 1896, at 3 o'clock P. M.

Present:

J. Rodman Paul, Esq., for Respondent.

Horace L. Cheyney, Esq., for Libellant.

J. F. McKernan, recalled, sworn and examined.

By Mr. Paul:

Q. Mr. McKernan, will you please state a little more fully than when you were last examined exactly what your position and duties were with reference to the

Steamships of the International Navigation Company in July, 1894?

A. I was superintendent of the repair shop at that time, and it was my business to go down in the ship as soon as she arrived and to go down into the engine room and examine the state of the machinery and see if there were any repairs to be done or reported; to confer with the chief engineer with regard to what repairs he had put in his requisition for Mr. Doran and also to examine for myself to see that everything was all right and the ship to be put in good condition before going to sea again?

Q. Did you make any other visit after that first visit about which you have spoken?

A. That was on the day of arrival; of course, on the second day when the engine room was cooler, and you could get a better, more comfortable idea of what was required, go around and make a rigid examination of everything, and then the repairs were—

Q. Was that a personal inspection or by deputy?

A. It was personal. And then the repairs were carried on. Then on the day of sailing it was my business to go around and see that everything was all right and the machinery in good working order and everything in a good seaworthy condition.

Q. When you speak of "machinery," what do you include?

A. I include the whole of the machinery on the ship; that is, the main engines and the boilers and refrigerator plant, electric lighting plant, and all the auxiliary machinery of the ship.

Q. When the "Southwark" was about sailing prior to the 5th of July, 1894, had you or had you not made such an inspection of her as you have stated?

A. Yes, sir. I think it was on the 4th of July she sailed.

Q. The 5th, I think, early in the morning. What was her condition when she sailed? How long before did you see her, go upon her, you have said that already?

A. I was about the last man to leave the ship; almost as soon as I came ashore the gang plank was taken in, and the ship sailed; I might have stayed on deck perhaps a quarter of an hour or so talking to the officers, but everything was right when I left the engine room.

Q. Was or was not the vessel properly equipped?

A. Yes, sir.

(Question objected to, as being a question of law.)

Q. Was she properly manned and supplied?

A. Yes, sir; that is, to my knowledge.

(Question objected to, as being a matter of law.)

Q. In the inspection and repairing prior to that voyage was or was not the refrigerating machinery included with the main machinery?

A. Yes, sir.

Q. What was the condition of the refrigerating machinery when you last saw her?

A. In a very satisfactory condition.

Q. Was or was not it possible to detect a defect or leak in that machinery when it happened?

A. It would have been impossible for a leak of a moment to be there without anybody knowing it, because the slightest leak would have driven a man out of the engine room, a pin hole or a hole the size of a pin's point.

Q. Was the vessel seaworthy so far as your inspection and repairs could make it so?

A. I reported to that effect to Mr. Doran on that point.

(Question objected to, as being a question of law.)

Cross-Examination.

By Mr. Cheyney:

XQ. Do I understand you to say you were the Superintendent of the repair shop?

A. Yes, sir.

XQ. Who is the engineer in charge of the American Line?

A. Mr. Doran.

XQ. What is Mr. Doran's duty so far as the engines of the vessel are concerned when she comes into port?

A. He is superintending engineer, it is his duty to receive all reports from the chief engineer and from the superintendent of the repair shop and to examine, if possible, himself, when necessary.

XQ. Do you know whether Mr. Doran made any examination?

A. I don't remember.

XQ. Do you remember whether any of his subordinates made an examination?

A. His subordinates?

XQ. Yes.

A. Well, I did.

XQ. Has Mr. Doran an assistant?

A. Yes, sir.

XQ. Who is his assistant?

A. Mr. Carnegie.

XQ. Who was his assistant at that time?

A. Mr. Clark.

XQ. Do you know whether Mr. Clark made an examination?

A. I don't remember.

XQ. Was it Mr. Clark's duty to make any examination?

A. It would be his duty if he was called upon by me or the chief engineer.

XQ. Would not Mr. Clark or Mr. Doran always have made an examination? In other words, isn't an examination always made by Mr. Doran or by his assistant when the vessel comes into port?

A. If he was not there he could not make an examination.

XQ. He generally makes an examination?

A. If possible, yes, Mr. Doran or his assistant.

(Mr. Paul: In 1894 do you refer to?

The witness: You mean in Philadelphia?

Q. Yes.

A. I could not say that.)

By Mr. Cheyney:

XQ. As a matter of fact, doesn't Mr. Doran or his assistant always make an examination of the engines and machinery of a vessel when she is in port?

A. If possible.

XQ. When is it not possible?

A. Well, he might be sick.

XQ. I don't want you to evade my question; isn't it the universal practice and custom in your company for Mr. Doran or his assistant to make an examination of the machinery of the vessel when she is in port?

A. That is what I said, if it is possible to do so; I cannot give any further answer than that.

XQ. And the only case you can mention when it is not possible is where one or both may be sick?

A. May not be there at the time, or he may have more important business, don't know. I should say that Mr. Doran would if he could possibly get around to every ship, he would be down there to personally examine every ship that comes in.

XQ. How many cases do you know where a vessel has been in port where Mr. Doran or his assistant has not made an examination?

A. I could not tell you that.

XQ. How long had this refrigerating plant been in the "Southwark" before the voyage in July of 1894?

A. I could not say unless you tell me how long the ship had been running.

XQ. It was her first voyage in hot weather, wasn't it?

A. I could not say that.

XQ. Who installed that plant on the "Southwark"?

A. It was installed in Liverpool.

XQ. It was an old plant from some other vessel, was it not?

A. It was an old plant.

XQ. And is now on the "Rhynland"?

A. Yes.

XQ. You put it there?

A. Yes.

XQ. What experience have you had in the manufacture, care or construction of refrigerating machinery?

A. I had six years' experience in running the plants and installing them, not in the manufacture, but in the installation of them.

XQ. That is, as superintendent of the repair shop?

A. Yes.

XQ. And that is the only experience you have had with refrigerating machinery?

A. Yes, sir.

XQ. And the refrigerating machines in the American Line are all of the Kilburn type, are they not?

A. Yes.

XQ. And your experience has been with those machines exclusively?

A. Yes.

XQ. Do you know anything about the capacity of a refrigerating machine?

A. Well, I guess— Do you mean that particular machine?

XQ. Yes.

A. I should say the capacity of that machine was equal to about ten tons of ice—eight to ten tons of ice per day.

XQ. Have you or not said whether any repairs were made to the refrigerating machine while she was in Philadelphia prior to that voyage?

A. Slight repairs made, of course, I could not say what they were.

XQ. Do you know whether any repairs were made to the bonnet of the condenser?

A. I think we did some repairs to that bonnet on the following voyage; I don't think we touched it that time.

XQ. Of course, you don't know whether any repairs were made at Liverpool?

A. That I can't say.

XQ. How large is the commercial box storeroom of the "Southwark"?

A. Speaking from memory I think it would hold about—roughly speaking—about fifteen hundred quarters of beef.

XQ. What were its dimensions—about how long and how wide?

A. Well, it was not a straight box, it was cut up in sections through the hatches going through the box. I should say it was about, the ship would be 50 feet beam and the box would be about probably 50 feet long. I could not say for certain, as near as I can remember.

XQ. How wide is it?

A. About 50 feet.

XQ. It was square then?

A. 2500 square feet then, 2500 square feet.

XQ. What is the height between the deck?

A. The height was 5 feet 10. Or else perhaps 5

feet 9. That is when the insulation was in the box.

XQ. Has there been any change in that box since this machine was taken out?

A. The box is used so far as I know for cargo.

XQ. In the same condition?

A. We took all the pipes out, and we took part of the insulations out. We took the insulations down around the hatches and some of the insulations on the upper part of the upper deck.

XQ. Do you remember the refrigerating machine which is used in connection with the ship's storeroom?

A. On the "Southwark"?

XQ. Yes?

A. Yes.

XQ. That was a Kilburn machine also?

A. Yes.

XQ. What was the capacity of that machine?

A. I forget now what it was. I could not tell you; perhaps, if I saw the machine now, I could tell you; perhaps six or eight tons, perhaps.

XQ. Do you know personally who had charge of the installation of that machine in the commercial box?

A. I believe Mr. Webb, in Liverpool, put it in there.

XQ. Who is Mr. Webb?

A. He is an engineer.

Re-Examination.

By MR. PAUL:

Q. If Mr. Doran was absent at that time in July who superintended the repairs?

A. If Mr. Doran was absent, as I think he said he was absent, I represented him there.

Q. Did it require Mr. Doran's approval of repairs when he was absent?

A. No, sir.

Q. Did the assistant, Mr. Clark, superintend the ship at that time, do you know?

A. I believe he did. I don't remember that particular time; he may have been there during the week she was in port. I don't remember.

Signature waived.

The taking of depositions in the above matter was resumed at the office of BIDDLE & WARD, No. 505 Chestnut Street, on Monday, June 8, 1896, at 2 o'clock P. M.

Present:

HORACE L. CHEYNEY, Esq., for Libellant.

J. RODMAN PAUL, Esq., for Respondent.

JAMES S. DORAN, AFFIRMED.

By MR. PAUL:

Q. What is your present occupation?

A. Superintending engineer for the International Navigation Company.

Q. How long have you been in that position?

A. I think for about twenty years. I do not remember exactly; I have been twenty years in their employ, for twelve years of which I have been superintendent.

Q. Do you remember the refrigerating machine on the steamship "Southwark" in July, 1894, in a general way?

A. Yes, sir; I remember a machine, but no particulars as to its condition at that time, because I was on the other side that summer.

Q. Did you afterwards receive word of any trouble with that machine on the voyage from Philadelphia to Liverpool in July?

A. Yes.

Q. Whom did you receive word from?

A. That I cannot remember; probably by letter from somebody on this side.

By Mr. Cheyney:

XQ. You received that word on the other side?

A. Yes.

By Mr. Paul:

Q. Do you think you received any word from the chief engineer?

A. I do not remember hearing that directly from the chief engineer.

Q. (Paper shown witness.) Do you remember receiving that letter from the chief engineer?

A. Well, I remember the letter, but I do not remember where I received it. The custom or practice is to put my name at the head of these letters. They go to the company all the same, whether I am about or not.

(Letter shown witness is marked "Exhibit 1, 8 June, 1896, T. A. F.")

Mr. Paul asks Mr. Cheyney whether this is the report or letter which he has called for and says that he knows of no other.

Mr. Cheyney replies that this is not the one, that he is informed there was another one.

Q. In that letter Mr. Paul, the chief engineer, speaks of certain articles having been ordered for the repair of the machine after that voyage; do you remember whether those were afterwards procured, and if so, what was done with them?

A. Well, I cannot say from my own personal knowledge that they were procured, but the bill is among my records.

Q. I show you paper marked "Exhibit 2, 8 June, 1896, T. A. F.," and ask you whether you know of any other or more extensive repairs than the substitution of these new articles for those damaged on that voyage that were made to that machine?

A. No, sir.

Q. What experience and knowledge have you of these refrigerating machines?

A. Well, we have about 25 or 30 of them in different ships. I have been very intimately associated with their introduction by Mr. Kilburn in the business. We took the first machine that he made for ship use, and all the others that we have in use have followed that, that is, practically the same plan, the same principle.

Q. Are you familiar with the working and structure of those machines?

A. Yes, sir.

Q. Taking the account of the chief engineer, by which it appears that there was first a leak in the bonnet of the condenser, and then following that an injury to the connecting rod of the compression pump, connected with the condenser, and taking into consideration the fact that the temperature of the water in the condenser at that time was unusually high, can you form any idea of what caused that trouble?

(Mr. Cheyney objects to this question or any other question framed on the facts set forth in the report which Mr. Paul has read, as it is not in evidence, and the facts upon which the question is based have not been proved.)

(Mr. Paul says he will follow up this question with proof of those facts.)

Q. Taking the statement of what occurred and the fact that the temperature of the water in the condenser was very high, can you form any idea of what caused first the leak in the condenser bonnet and secondly the breaking and bending of these parts of the pump?

A. Well, the existence of this abnormal condition of the water and air and all the surroundings would account for perhaps the slight leakage in the condenser bonnet, and then afterwards the fast working of the machine to overcome this high temperature caused them to break.

Q. Why was their fast working necessary under such conditions of temperature?

A. Of course the principle of the thing is that you take a cubic foot of ammonia gas and compress it, for illustration, to the bulk of a cubic inch; by that you make the heat that is contained in the cubic foot very evident, so that it would be hot, so that a temperature of 70 degrees, the temperature of the surrounding water and air when it is expanded to a cubic foot bulk, when you press it to a cubic inch would be very hot so that you cannot touch it at all; then the water that is to take the heat out of that is passed over it. And as that is say a temperature of 70 or 75 degrees, you can see that it would not begin to take the heat out of that cubic inch as if the temperature were down to 50. Therefore, since it has not taken the heat out of that bulk, this compression and expansion must be repeated that much oftener to overcome the temperature that they are working on which is the temperature of the meat room. So that instead of going about it deliberately, taking their time, the machine must go very fast as to set up extra friction, and danger to the machine in doing it.

Q. In your opinion would the temperature explain the breakage narrated in that report?

A. Yes, sir.

Cross-Examined.

By Mr. Cheyney:

XQ. How long were you on the other side that year —when did you return to Philadelphia?

A. I think I returned in September; I think so.

XQ. Who was the chief engineer of the "Southwark" on this voyage; do you remember?

A. Mr. Gilbert Paul.

XQ. How long did he remain on the "Southwark"?

A. That I cannot say; I think two or three voyages subsequent.

XQ. And he was succeeded by whom?

A. By Mr. MacDonald.

XQ. Where is Mr. Paul now?

A. He is running on a steamer out of Liverpool; I cannot tell you.

XQ. Is he on one of your steamers or not?

A. No, sir.

XQ. Where is that refrigerating machine at the present time that was on the steamer during this voyage in question?

A. I do not remember; I think it is on the "Belgenland" or "Rhynland."

XQ. That machine was not of the Kilburn type, I believe?

A. Oh, yes it was.

XQ. It was not a new machine on the steamer; it had been used before that time?

A. Yes.

XQ. Do you know how long it had been in use and where?

A. No.

XQ. It was put in on the other side when the steamer was built?

A. Yes, sir.

XQ. And you have not a very good recollection of the particular machine, have you, and its condition in the summer of 1894?

A. No, sir; I have no particular recollection, no recollection of the particulars of the machine but its

general condition; of course we knew that the machine was for some time in Liverpool and we had it bought, had it overhauled by perfectly competent people, by the people who built it.

XQ. This voyage in July was the third or fourth voyage that the "Southwark" had made, was it not?

A. Yes, sir; I think there were more than that. She began to run in the fall of the year; I think it was the fifth or six voyage.

XQ. She began running in February?

A. In December, I think.

XQ. Do I understand you to say, that, with the exception of the repairs mentioned in the bill which you have found among your papers that you know of no other repairs which were made to this machine while on the "Southwark"?

A. Well, I do not remember of any special repairs ever having been made.

XQ. No special repairs?

A. No special repairs.

XQ. Do you remember whether the Kilburns ever did any work to it or not?

A. No; I do not remember that, but I do not think they did.

XQ. If any repairs had been made while Mr. MacDonald was in charge, of course, he would be very likely to know about it; would he not?

A. Well, I do not know whether he could locate any small repairs; of course, if any very big repairs had been made, he would, but I do not think there was any done.

XQ. In the question Mr. Paul asked you he spoke of the temperature of the water being high; what figure did you understand that to refer to?

A. Well, 75° to 80° would be high.

XQ. In answering the question in the manner in which you did, you assumed that the water was of a temperature of 75° or 80°?

A. Yes.

XQ. You spoke in your answer of the abnormal condition of the air and water; what is the abnormal condition of the air to which you refer?

A. I think that was wrong; it was not abnormal for the time of the year; my mind was running on the average temperature for the year around, and compared with that it was abnormal.

XQ. Then the temperature in the summer season, of course, must be calculated upon always?

A. Yes; that is so.

XQ. Do I understand that it is impossible to construct a machine which will sustain the high pressure to which you say this machine was properly subjected?

A. Do I understand you to ask whether it is impossible to construct such a machine?

XQ. Is it impossible?

A. I do not say so; no, sir.

XQ. Are not machines ordinarily constructed, and do they generally not sustain as great a pressure as would result to the machine in this instance from the temperature of the air from 75° to 80°?

A. They do sustain it; yes, sir.

XQ. About what pressure would result from using water of a temperature of 75° to 80°? What would be the pressure on the condenser?

A. I cannot answer; I am not sufficiently familiar with the fine technicalities of it.

XQ. That could be better answered by a manufacturer who has tested the machines?

A. Yes, sir; or the men standing right around watching them working all the time.

XQ. How many machines were there on the "Southwark"; do you remember?

A. There were practically two machines, that is to say, a double engine machine, two engines on the commercial machine and then the ship's refrigerator for cooling the ship's provisions, independent of the commercial.

XQ. Those two machines are entirely disconnected in the ship?

A. Well, there was an arrangement of pipes by which one could assist the other in case of necessity.

XQ. Do you know upon this occasion whether or not the refrigerating machine used generally for the ship's provision room was used for the commercial box?

A. Yes; that is reported in Mr. Paul's report. He says it was.

XQ. Can you explain why, with two machines using the same water there should be a difference of 6 degrees in the temperature resulting from the machines?

A. Where was the 6 degrees difference?

XQ. In the rooms which were cooled by the refrigerating machines?

A. Yes; one might be the working on a very small room and the other on a larger one.

XQ. In other words the machine which had the larger room proportionately could not do as effective work as the other one which had a smaller room?

A. It would be as effective in time; of course, it would not do it in as short a time.

XQ. Then the only difference would be it would take longer to reduce the temperature of the room in the first instance?

A. Yes, sir.

XQ. After it was first reduced, it would not have any trouble in keeping it to the same temperature as the other room?

A. No; providing everything is right.

XQ. Do you know what the comparative sizes of the ship's provision room and the meat box or the commercial box on the "Southwark" was?

A. No; I could not state any comparison of size; there was a vast difference in the size, but I could not give you any idea how much more bulk there was in one than the other.

XQ. How did the refrigerating machine, used for the ship's provision box, compare in size with the one used for the meat box?

A. I cannot remember that either; I think the ship's machine was pretty large for its work, but not by design; there was such a machine available, and we took it; we did not proportion the thing exactly to its work.

HERBERT DALE HAVERFIELD, Sworn.

By Mr. Paul:

Q. What is your occupation?

A. I was second engineer on the "Southwark."

Q. How long have you been on the "Southwark"?

A. I joined her when she was being built in the yard.

Q. And remained on her constantly from that time?

A. Yes, sir.

Q. Were you aboard in July, 1894?

A. Yes, sir.

Q. What was your position then?

A. As second engineer at that time.

Q. Who was the first engineer?

A. Mr. Paul.

Q. Is he still with the ship?

A. No, sir.

Q. In July, 1894, do you remember some trouble with the commercial refrigerating machine?

A. Yes, sir.

Q. Did you have cause as part of your duty to see that machine?

A. Yes, sir.

Q. Did you see it before leaving port as well as after you had started on the voyage?

A. Yes, sir.

Q. Did you see the the machine on this occasion in early July when leaving Philadelphia?

A. Yes, sir.

Q. What was its condition before leaving Philadelphia?

A. It was in good working order when we left.

Q. Was it working when you left?

A. Yes, sir.

Q. Had it been working before you left?

A. It had been working probably forty-eight hours before.

Q. Is that usual?

A. It is usual to start it before leaving.

Q. And in warm weather, is it usual?

A. It was very warm in the refrigerating room.

Q. Did you see the machine just at or about the time you left port? Left the wharf here?

A. I could not say to an hour or two; I was in there several times during the morning.

Q. Was it in good condition during that time?

A. Yes, sir.

Q. Tell us what you know, what you remember happened to it afterwards?

A. As far as I can remember the leak in the bonnet on the top of the condenser was temporarily repaired.

Q. When did that leak take place?

A. After the engine broke down.

Q. Begin now and tell us how it happened first, first the leak in the bonnet?

A. It was leaking a little; then this knock was reported to me in the engine.

Q. You have not stated when this was, how long after you left Philadelphia?

A. This was while we were going down the river. And then when this knock was reported to me I told the chief, and we decided to stop the machine and try and find out what was the matter, and we disconnected the two engines and ran the one engine on the box and set to work to overhaul the other, and we found the connection rod bent, both bolts broken, the piston cracked, and we took it out and straightened it, and after we got those on again, I turned the engine around and found the shaft was bent.

Q. Did you get that fixed?

A. That was taken out and straightened and put back again, and the engine closed up and the engine restarted again.

Q. Can you tell or form any idea of what caused the trouble with that pump, this shaft and connecting rod?

A. Running the engine at such a high speed, having to do that on account of the high temperature of the circulating water.

Q. You did not take the temperature of the water?

A. No; I did not take it.

Q. Was there any further trouble after you got these parts which you have mentioned fixed?

A. No; the machine worked very well after that.

Q. And did you have any further trouble after that?

A. No, sir.

Q. Had there been any trouble the voyage preceding this one?

A. No, sir; we had no trouble with it.

Cross-Examined.

By Mr. Cheyney:

XQ. About what temperature is maintained in the commercial box during the voyages?

A. About that time it was probably about 40 in the commercial box.

XQ. What temperature is it necessary to maintain, however, in order to safely and successfully carry a cargo of meat?

A. About 32 degrees.

XQ. It must be below the freezing point?

A. Yes, sir.

XQ. As a matter of fact, the average temperature at which meats are carried is about 26 degrees; is it not?

A. Not necessarily; if the meat is well frozen at the beginning, you need not keep the temperature quite so low.

XQ. But, as a matter of fact, it usually is kept down to about 26 degrees; is it not?

A. Yes, sir.

XQ. You are still on the "Southwark"?

A. No, sir; I am on the "Paris" now.

XQ. How long did you remain on the "Southwark"?

A. I remained for two voyages after that.

XQ. Did you remain there until Mr. MacDonald came or not?

A. No, sir.

XQ. How long did Mr. Paul remain on the "Southwark," do you remember?

A. He left the voyage after that, I believe.

XQ. Do you know Mr. Paul?

A. Yes, sir.

XQ. Where is he now?

A. He is in one of the Leyland's boats.

XQ. Where is he running?

A. From Liverpool to Boston, I believe.

XQ. Who had charge of this refrigerating machine?

A. Two men named Shinn and Frazier.

XQ. Are they still with the boat?

A. No, sir; neither of them.

XQ. Do you know where they are?

A. One of them is working for Kilburn, Frazier; and Shinn is working for some electric engineers in Liverpool.

XQ. Is Frazier in Liverpool or here?

A. No; in Liverpool.

XQ. They are no longer following the sea?

A. No, sir.

XQ. How long did you say this machine had been working before the "Southwark" left her dock on this voyage?

A. About 48 hours.

XQ. What was the purpose of starting the machine for forty-eight hours before sailing?

A. To get the room cooled down.

XQ. And was that successfully accomplished?

A. The room did not come down quite as low as it usually did, from the intense heat at that time of the year.

XQ. About what was the temperature of the room prior to sailing?

A. It was standing about 38° or 40°, as near as I can remember.

XQ. What was the first trouble to this machine that was called to your attention?

A. The slight leak in the bonnet, the leaking of the ammonia.

XQ. When was that called to your attention?

A. That was going down the river.

XQ. How long after you had sailed?

A. I cannot exactly say, about an hour or two, probably an hour or so after we had sailed.

XQ. What was done at that time?

A. As near as I can remember there were wedges put into the joints, wooden wedges.

XQ. What was done with the refrigerating machine, did you still continue to use that?

A. When the knock came it stopped the machine.

XQ. When it first commenced to leak, though———

A. We kept the machine still running.

XQ. You continued running that machine, did you, after that time steadily during the voyage?

A. Yes, sir.

XQ. All the time?

A. After we had it repaired.

XQ. No; from the time it began to leak, did you continue to use the machine during the voyage or not?

A. We had to stop it to repair the connecting rod; after that it was used steadily.

XQ. When did you start it, do you remember?

A. I cannot say whether it was the next day or the day following.

XQ. You think either the next day or the day following; you do not remember what repairs were made?

A. Yes, sir; we straightened the shaft.

XQ. I mean before that time, though, in consequence of this leak?

A. The joint on the bonnet was remade.

XQ. How did you do that?

A. With a new joint; we had to go into the room with a helmet on.

XQ. You put a new joint on?

A. Yes, sir.

XQ. And during this time the ship's engine was used on the commercial box?

A. Yes, sir.

XQ. And then after that you commenced using the commercial machine again?

A. Yes, sir.

XQ. When did you have the second difficulty with it, when this knock about which you spoke came?

A. That was after we finished this joint on the bonnet.

XQ. How long afterwards?

A. I think it was the day following; I could not exactly say; it is so long ago.

XQ. What did the examination show as to the condition of the machine at that time; what did you find to be broken or injured?

A. The crank shaft was bent and the two connecting rod bolts broken, and the connecting rod bent and the piston cracked.

XQ. That is the compression piston?

A. Yes, sir.

XQ. What was done in consequence of that?

A. We straightened the rod and got new bolts for it; bolts from other parts of the machine, engine machinery, put those in, straightened the shaft and closed it up again and restarted the machine.

XQ. During that time you had been using one of the engines, had you not, on the commercial machine?

A. Yes, sir.

XQ. And also the ship's engine?

A. Yes sir.

XQ. Do you remember the crank shaft being bent?

A. Yes, sir.

XQ. And you finally got the machine straightened out, about when?

A. As soon as ever I got it closed up.

XQ. About how many days after you left was the machine in good working order?

A. Probably three or four days after that.

XQ. And did it work entirely satisfactorily after that time?

A. Yes, sir.

XQ. You had no trouble with it at all?

A. No, sir.

XQ. You had no complaints after that time to make about the machine having to work too hard or the temperature being too low?

A. Yes, sir; the machine had to be run unusually hard up to the time of the breakdown.

XQ. I mean after it was repaired on the 8th about three or four days after you left port; you had no trouble with the machine at all?

A. No, sir.

XQ. It did not have to work unusually hard?

A. No; not after that.

XQ. You had no complaint of the temperature of the water; it was entirely satisfactory?

A. No; the water was pretty high most all the way over.

XQ. But still the machine did its work entirely satisfactory?

A. Yes, sir.

XQ. Worked just as well as a new machine after that time?

A. Very nearly.

XQ. And it did not have to work unusually hard but worked in the usual manner after that time?

A. Yes, sir.

XQ. You do not know what the temperature of the water was at all when you started from Philadelphia of you own knowledge; you did not take the temperature?

A. No, sir.

XQ. How do you ascertain whether the result from

the machine is a proper one—do you go into the commercial room and take the temperature there?

A. No, sir; there is a tube let down from the deck with a thermometer attached to a cord and a screw plug in the deck. You take that out; just haul the thermometer up.

XQ. Is that in the bow of the vessel or where?

A. One is in the after end of the room and one in the forward end of the room.

XQ. Those thermometers are in the box?

A. Yes, sir.

XQ. And as the thermometer is higher or lower there, you increase the rate of the engines of the refrigerating machines, is that so?

A. Yes, sir.

XQ. In other words, it is not an automatic arrangement?

A. No, sir; it is not automatic.

XQ. If the temperature in the room is high, it does not necessarily increase the rate at which the engines of the refrigerating machines are compelled to work—you have got to increase that as the temperature is reported to you?

A. Yes, sir.

XQ. You do not know where this refrigerating machine is at the present time of your own knowledge, do you?

A. I believe it is in the "Belgenland."

XQ. It was not a new machine when it was put on the steamer?

A. No, sir; as far as I can remember it came out of the old "Chicago," one of them did whichever it was.

XQ. When are the temperatures of the commercial box and the ship's provision box taken, which are recorded in the log—at what time of the day?

A. I could not say; they are taken by the refrigerator man, who has it in charge.

XQ. But you have certain times for making entries in the log?

A. Yes, sir; but he made out his own log.

XQ. Those are taken by the man in charge of the refrigerating machine?

A. Yes, sir.

XQ. You do not know what time he took that?

A. No; I could not say what time.

XQ. For instance, an entry of July 14, you do not know whether that means 6 o'clock in the morning or noon or 6 o'clock at night, or when?

A. No, sir; I could not say.

XQ. Do you know generally how the ship's machine and the commercial machine compared in size?

A. One is about twice the size of the other.

XQ. And is twice the power of the other machine?

A. Yes; twice the power of the other machine.

XQ. About what was the size of the commercial box; do you know?

A. I could not exactly say.

XQ. Where was the meat box?

A. In the after end of the engine room.

XQ. Where was the engine room?

A. Amidships.

XQ. And the commercial box was just aft of that?

A. Yes, sir.

XQ. Do you know about the size of it?

A. No; I could not say.

XQ. On what deck was it?

A. On the lower deck.

XQ. How many decks had the "Southwark"?

A. Two.

XQ. She had two cargo decks?

A. No; one cargo deck.

XQ. How many decks had she altogether?

A. Three decks, and the box was in the middle one

XQ. Where was the ship's provision box?

A. That was on the middle one, too.

XQ. Where abouts on the ship?

A. The forward end of the galley.

XQ. Where was the galley from the engine room?

A. The galley was forward, at least, on the starboard side of the boilers, above the boilers.

XQ. Was that forward or aft, or where?

A. That would be forward.

XQ. Some little distance from the engine room?

A. Yes.

XQ. When was your attention first called to this matter?

A. On going down the river shortly after leaving.

XQ. I mean since that time, when has your attention been called to the circumstances? When have you been first asked about this case?

A. I think Mr. Doran asked me the first time, some voyages after when I rejoined the "Southwark."

XQ. Do you know how long after that was?

A. Probably six months after.

XQ. There was nothing in this particular voyage, or there was nothing in connection with the beginning of this particular voyage which distinguishes it from any other; was there?

A. No, sir.

XQ. And you were around the engine room generally?

A. Yes, sir.

XQ. Was it your watch or not? Were you on duty at the time the ship sailed?

A. I was on duty pretty near all the time.

XQ. What do you mean by that?

A. There is always some trouble going on with some of the machinery.

XQ. Do you mean to say that you are on watch from one day's end to the other?

A. I have been on watch 48 hours at a stretch.

XQ. That is not general?

A. No, sir; not general.

XQ. You do not remember whether you were on duty at this particular time or not?

A. I could not say it was my watch; I do not think so.

XQ. You are always around when the vessel sails from port, though?

A. Yes, sir; always.

By MR. PAUL:

Q. Do you remember of your own recollection that this trouble did occur, or are you merely stating what you heard?

A. Oh, no; I knew that it occurred.

Q. Knew it yourself?

A. Yes, sir.

By MR. CHEYNEY:

XQ. That meat came out on the other side in pretty bad condition, or do you remember?

A. I did not consider it so bad.

By MR. PAUL:

Q. Did you see it?

A. Yes, sir; I saw it taken out.

By MR. CHEYNEY:

XQ. It was not choice meat?

A. Not that in the forward part.

JAMES ALEXANDER ALDCRAFT, Sworn.

By Mr. Paul:

Q. What is your position?

A. I am now fourth engineer of the "Paris."

Q. What was your position in July, 1894?

A. Third engineer of the "Southwark."

Q. Do you remember the voyage from Philadelphia to Liverpool the early part of July, in which there was some trouble with the refrigerating machine, the commercial machine?

A. Yes, sir.

Q. Had you seen that machine before you left port?

A. Yes, sir.

Q. And at the time you left port?

A. Yes, sir.

Q. Were you on watch during any part of that time just before leaving and at the time of leaving?

A. Yes, sir.

Q. Was there anything the matter with the machine so far as you could see at the time of leaving port or just before?

A. No, sir.

Q. When did the first trouble with the machine occur? Can you tell us when you first knew about it?

A. I cannot give you the exact date, but it was somewhere in the river.

Q. What was it?

A. The ammonia joint began to leak. The angle joint, and then that was tried to be remedied by driving wedges into it; and shortly after, the machinery broke down, the compression pump. They opened it up, found the connecting rod bolts broken and bent and the piston cracked, and we overhauled it and we made this joint and overhauled it.

Q. After that, did it work?

A. After that it worked a short time; and we found the crank shaft bent, stopped the engine; disconnected the shaft again and then we set it under weigh again. Then it worked pretty well until we arrived at Liverpool.

Q. How long did you continue on the "Southwark"?

A. I was one voyage after that.

Q. And did the machine work properly that voyage?

A. This machine worked very well, brought it back to Liverpool again and had no trouble.

Q. Had you any trouble with the prior voyages?

A. No, sir; nothing particularly.

Q. Could you form any idea why the leak occurred and the pump broke down on this voyage?

A. The only thing I can refer that to is on account of the excessive speed we put the machinery in to keep the temperature in the box.

Q. What was that due to—why did you have to have that excessive speed?

A. The sea water being warm.

Q. When you speak of sea water, do you mean water out of the river?

A. I mean water outside of the ship, in the dock or river, as the case may be.

Q. Was it warm weather then?

A. Yes, sir; very warm.

Cross-Examined.

By Mr. Cheyney:

XQ. How long did you say you continued on the "Southwark" after this voyage—one other voyage?

A. One trip, sir.

XQ. Who was the chief engineer at the time this accident happened?

A. Mr. Paul.

XQ. Mr. Paul was still on the ship when you left?

A. Yes, sir.

XQ. Who had charge of the refrigerating machine?

A. Mr. Shinn, and I forget the other engineer's name. He had an assistant engineer along with him.

XQ. And they made all the entries which are in the ship's log in regard to the refrigerating machine?

A. I do not know about the ship's log.

XQ. I mean the refrigerating log?

A. They had a refrigerator log.

XQ. They made all the entries?

A. Yes, sir.

XQ. How long had the commercial machine been running before the "Southwark" left her dock?

A. It had been running fully twenty-four hours.

XQ. Do you remember when it commenced running, or do you speak of the general practice?

A. Well, I am partly speaking of general practice and partly by the people that put in the meat. As a general rule they come across the ice box the night before leaving port before they put the meat in the box. They pass that, they go down and pass the commercial room.

By MR. PAUL:

Q. Do you mean take the temperature?

A. Take the temperature to see if the box is fit to take the meat.

By MR. CHEYNEY:

XQ. Do you remember particularly making any examination of the commercial machine before you left port or the time you left port?

A. How do you mean, do you mean the engine?

XQ. Did you go to it and overhaul it, or make any examination of it?

A. No; I did not overhaul it.

XQ. Your duty is simply to superintend?

A. Superintend over it.

XQ. But you did not make any examination of it at that time?

A. No, sir.

XQ. Of course you are more interested in the ship's main engine from the time you leave port, and that took most of your attention.

A. Yes, sir.

XQ. Do you remember when the ammonia box began leaking?

A. No; I cannot say.

XQ. How long was it after you left the dock?

A. I do not know; I cannot give you any specific time.

XQ. It was within a few hours afterwards?

A. A few hours afterwards.

XQ. How did you attempt to remedy that or repair it?

A. By trying to drive wedges in.

XQ. Was that successful?

A. Not very.

XQ. But still it worked for a time?

A. Yes, sir.

XQ. And you then disconnected one of the engines and commenced to make repairs?

A. Yes sir.

XQ. And at that time you put in the new bonnet on the condenser?

A. Yes, sir.

XQ. And what else did you do?

A. Overhauled the engine generally.

XQ. And you got it, as you thought, in repair, and coupled the engine again, and shortly after you commenced using it, you found the compression shaft was cracked?

A. Bent.

XQ. And did you uncouple the engine again at that time?

A. Yes, sir.

XQ. And straightened that out?

A. Took it out and straightened it.

XQ. And the machine was then in good working order?

A. Yes, sir.

XQ. About how many days after leaving port was that that you finally completed the repairs?

A. Completed the repairs? I consider that would be about four or five days.

XQ. And after that the machine worked satisfactorily?

A. Yes, sir.

XQ. And you had no trouble with it at all?

A. No trouble.

XQ. And you had no trouble with the high temperature of the water after that time?

A. No.

XQ. It worked entirely satisfactory?

A. Yes, sir.

XQ. And you were able to get the temperature of the room down to the proper degree after that?

A. Somewhere about that.

XQ. Of course, you do not know anything about the entries made in the refrigerator log?

A. No, sir; I only remember the job; it was a pretty warm job doing it.

XQ. Where is Mr. Paul now, do you know?

A. I cannot say, sir.

XQ Do you know why he left the service of the International Company?

A. I cannot say.

XQ. You have not seen him since this occurred, or since you left the vessel?

A. No, sir.

XQ. Were you present when the commercial box was opened—were you on the ship at Liverpool?

A. I was on the ship.

XQ. Were you present when the box was opened?

A. No.

By Mr. Paul:

Q. Did you see the meat?

A. I considered it was in a salable state.

Q. Did you see the meat before it was put in in Philadelphia?

A. Yes, sir; I seen the meat before it was put in at Philadelphia.

Q. It was hot weather then.

A. Yes, sir; warm weather.

Q. Did you handle it at all when it was being put in at Philadelphia?

A. No, sir.

Q. You do not know what temperature the meat was before it was put in the box?

A. No, sir; I do not.

Q. Meats when they arrive are supposed to arrive frozen to be put on, are they not?

(Objected to by Mr. Cheyney.)

A. Yes, sir.

Q. You have stated that the injury to this machine probably arose from the excessive speed; do you happen to know how much above the normal speed the machine was running?

A. No; I think the machine would be running about 90 or 100 revolutions.

Q. And what is the normal state?

A. Normal would be about fifty.

Q. Do you know that of your own knowledge, or are you simply telling what some one has told you?

A. No; I am not telling you what some one has told me; I am going by judgment.

Q. But you do not actually know?

A. I do not actually know.

Q. You cannot explain the accident in any other way than that the machine was running at a high rate of speed?

A. Yes, sir.

Q. Had there been any trouble in the running of the machine from the time it was started here up to the time the leak first began?

A. No, sir; not the slightest.

By Mr. Cheyney:

XQ. How do you know that—there had been no trouble reported?

A. Nothing reported, and anything that occurs like that is reported.

XQ. Do you see the machine from where you are working—is the machine in view?

A. It is working in your view all the time.

XQ. Where is the machine in the engine room?

A. On the top platform.

XQ. It was your watch at the time the "Southwark" left the dock at Philadelphia?

A. It is no one engineer's watch; when a ship leaves port it is all the engineers' watch.

XQ. But someone is in charge?

A. The chief engineer is in charge.

By Mr. Paul:

Q. But you are all on duty?

A. Yes, sir.

By MR. CHEYNEY:

XQ. What were you doing particularly at the time the "Southwark" left on this voyage?

A. Looking after the steam.

XQ. And that took most of your attention, of course?

A. Yes, sir.

COMMISSION TO LIVERPOOL.

(Amended Interrogatories to Gilbert Paul and his Answers thereto.)

GILBERT PAUL being produced and examined and sworn deposeth and saith as follows:

1 Q. Do you know the libellants Martin Fuller & Company, and the respondent or claimant, the International Navigation Company, or either of them in this case. If so, how long have you known them?

A. I do not know the libellants Martin Fuller & Co., but I do know the International Navigation Company. I was in their employment since they acquired the steamers of the Inman Line until October, 1894, when I left their service.

2 Q. What is your age, residence and present occupation?

A. I am 46 years of age. I reside at No. 1 Keble Road Bootle in the County of Lancaster and my occupation is that of chief engineer on board the steamship "Flavian" of Liverpool.

3 Q. Have you followed the sea, if so, for how long and in what capacity?

A. I have followed the sea from the year 1876 as marine engineer of various grades.

4 Q. Were you employed on board the steamship "Southwark" in July 1894, and on the voyage from Philadelphia to Liverpool, leaving Philadelphia, July 4th 1894. And if so, in what capacity, and how long did you continue on said steamship and in the employment of the International Navigation Company. State generally how you have been employed since leaving the service of the International Navigation Company?

A. I was as chief engineer. I continued on board the said steamship throughout that voyage and to the best of my recollection the two following voyages. I was in her until I left the service in October, 1894. I have been employed in the Leland Line continuously since I left the International Navigation Company as marine engineer.

5 Q. Do you remember the breaking down of the refrigerator machinery in July, 1894? If so, state fully the circumstances as you remember them.

A. After the lapse of time which has taken place it is rather hard to remember everything that occurred. Speaking from recollection now there was a little leak in the bonnet of the condenser of the refrigerating machine of the cold chamber of the "Southwark." We got that made right and the machine was started up. We put on the refrigerating machine of the ship's own cold store and repaired the bonnet. On the following day the bolt of the connecting rod broke. I put the ship's refrigerating machine on again. After that we disconnected the machine and worked with one engine until such time as we got the broken parts repaired. It was a hard job to do as the crank shaft was bent. Of course we kept this machine working with a single engine while the repairs were being effected. The ship's refrigerating machine was also kept going on and off on the cold meat box. I do not remember exactly how long it took us to

do the repair. As I recollect it took us a day or two. After the repairs it worked all right, it gave no more trouble.

6 Q. Please look at the subjoined copy (Exhibit No. 1, September 18, 1895, C. E. Hough) being extract from the Log of S. S. "Southwark," Voyage 5, East, for the voyage in question and state whether the single entries under the various heads for each day represent a single observation on each day or an average of several observations, and if the latter how many such observations were taken and at what hours?

A. The single entries under the various heads for each day represent an average of 4 observations taken each day of 24 hours but I cannot say the exact times. They were taken at the same time each day and night by the refrigerating engineer, Shinn.

7 Q. Have you any explanation of the breaking down of the machinery; if so, state it, and what if anything could have been done by yourself or anyone else to have prevented it?

A. I cannot give any confident explanation of the break down of the machinery. It was I think a flaw in the bolt of the connecting rod. The flaw was not visible. It is boxed in. It showed no signs of anything wrong before we left. The machinery had been working for three days before we left cooling the chamber down. No one could have done anything to prevent it. There was nothing visibly wrong with the machine. The machine was working all right. The bonnet of the condenser had nothing whatever to do with the broken bolt. It was no indication that there was anything wrong with anything else.

8 Q. Referring to the abstract log appended and the temperatures and pressures there noted, do they indicate the cause for the breaking down of the machinery? If so, what?

A. They do not. The entry for the 4th July shows the temperature when leaving the dock and we kept the whole of what we had.

9 Q. How had the machinery been working prior to leaving the dock at Philadelphia say for twenty-four hours or forty-eight hours, and what was the condition of the machinery at the time the steamer left the dock?

A. The machinery was working all right and was cooling the box down all right. The machinery was all right.

10 Q. Were or were not any special repairs put upon the refrigerating machinery prior to the voyage in question? It has been stated that the bonnet of the condenser had split prior to sailing, and that it was attempted to be hastily repaired without reference to the shops by the engineers on board; is this true or not?

A. As far as I can recollect there were no repairs except the ordinary overhaul. It is a mistake to say that the bonnet of the condenser had been split prior to sailing. There was a slight leak occurred on the joint of the bonnet, but the bonnet on the condenser cover never was split. There was no attempt to hastily repair it before sailing as there was no leak until after we had sailed. The leak was in the joint of the bonnet after we left the dock and we put the other machine on and rejointed it.

11 Q. Are or are not temperatures noted on the abstract log for July 4th excessive and of themselves sufficient to indicate that the machine was out of order? What effect, if any upon the machine and its workings, has the heat of the outer temperature of air and water and the heat of the meat put into the commercial box?

A. In my opinion the temperatures entered are not excessive or sufficient to indicate that the machine was out of order, especially considering the weather. Not-

withstanding the breakdown we kept the temperature we had got. The higher the temperature the greater the strain upon the machine. I mean the higher the temperature of the outside air and water. The heat of the meat put into the commercial box makes it more difficult to bring the temperature down. The heat of the meat when put in was 54 degrees.

12 Q. What had been the condition of the machinery during the preceding voyages and during those subsequent to the one in question while you remained on board?

A. The machinery was all right, both during the preceding voyages and during those subsequent to the one in question. There was just the usual overhaul which takes place at the end of every voyage when the machinery has been used.

13 Q. If you know any other matter or thing favorable to the respondent please state it without being especially interrogated thereto.

A. I know nothing more.

(*Cross-Interrogatories to Gilbert Paul and his Answers thereto.*)

1 XQ. At whose request have you presented yourself to be examined under this commission?

A. Messrs. Richardson, Spence and Co. requested me to present myself to be examined under this commission.

2 XQ. Were you or were you not subpœnæd to attend before the Commissioner?

A. No.

3 XQ. How did the person requesting your attendance know that you had any knowledge on the subject?

A. He would know as he is in the employment of Messrs. Richardson, Spence & Co., who are the agents for the International Navigation Company.

4 XQ. What conversation occurred between the said person and yourself at the time of your being requested to attend, or at any other time?

A. He just asked me to go and state what I knew, that was all.

5 XQ. Have you held any, and what conversation with any other persons and whom, in regard to your testimony in this cause?

A. No one at all with the exception that I to-day met the refrigerating engineer who was also going to give his evidence.

6 XQ. Have you been previously examined under oath or otherwise, and if so, when, where and by whom, on the subjects inquired of in the interrogatories in chief?

A. All I can say to the question is that a gentleman, a lawyer, called upon me in Boston and asked for information concerning the case, and I told him that I was out of the company altogether, and that I had given a full report of the breakdown of the machinery, and that whatever information he wanted to go to the Steamship Company's office and get it.

7 XQ. Have you received any letters or communications of any kind from the party by whom you have been called as a witness or from any person on his behalf, respecting the matters in controversy in this suit? If you answer that you have received any letters or communications annex the same to your answers.

A. I have not.

8 XQ. Have you refreshed your memory in any way for the purpose of testifying in this case?

A. No, with the exception of the conversation I have had for a few minutes with Mr. Shinn.

9 XQ. If you answer that you have refreshed it, state fully and in detail how you have done so.

A. I refer to my previous answer.

10 XQ. If you have refreshed your recollection, during the taking of your deposition, by referring to any papers, memoranda books, writing of any character what-

ever, attach the same to your deposition and state when such paper, memoranda, book or writing was made and by whom?

A. The only document to which I have referred is the extract from the abstract log attached to the commission.

11 XQ. Have you seen the interrogatories in chief or these cross-interrogatories prior to your examination by the commission, or have you had the same exhibited or propounded to you by any person heretofore?

A. Not one thing.

12 XQ. If you answer yes, state from whom you received the same, and by whom they were exhibited or propounded to you?

A. I refer to my previous answer.

13 XQ. Have you at any time heretofore been requested by anyone acting on behalf of the steamship "Southwark" or her owners to testify as to the facts in use in this cause?

A. I have been asked to give evidence and promised to do so.

14 XQ. If you answer that you have been so requested, state when and by whom, and why your testimony has not heretofore been taken?

A. I was requested to give evidence by Messrs. Richardson, Spence & Co., but can give no reasons why the evidence has not been taken before.

15 XQ. If you answer that you have not been requested to testify as to the facts in use in this cause by anyone acting on behalf of said steamship or her owners, state why your testimony has not been taken if within your knowledge?

A. It is not within my knowledge.

16 XQ. When did you join the steamship "Southwark" as chief engineer?

A. In the autumn of 1893.

17 XQ. How many voyages have you made as chief engineer of that steamship prior to the one commencing July 4, 1894, and upon how many of these voyages had cargoes of fresh meat been carried?

A. I had been in her as far as I recollect nine months. She would make a trip about every month, and the first two or three trips she did not carry fresh meat, though so far as I remember she did on the other occasions.

18 XQ. Name the vessels upon which you had theretofore been employed as chief engineer, and state which of those vessels carried regular cargoes of fresh meat?

A. I had been before the "Southwark," in the "New York," the "Berlin" and the "Chester." The "Chester" had salt boxes of the old style for carrying meat. The "Berlin" and the "New York" had the same class of machinery as the "Southwark," and carried cargoes of fresh meat regularly.

19 XQ. At what date did you cease to be chief engineer of the steamship "Southwark"?

A. In October, 1894.

20 XQ. Did you cease to be chief engineer of the steamship "Southwark" voluntarily, or were you discharged by the owners of the said steamship or any of their representatives, or were you requested by them in any manner to resign or give up your position as chief engineer? If you answer that you were discharged or requested to resign, state what officer of the company so requested you, or if you left voluntarily, state to what officer of the company you handed your resignation?

A. I gave in my resignation. I left voluntarily, and handed my resignation to Messrs. Richardson, Spence & Co., the English agents for the International Navigation Company.

21 XQ. Upon what vessel were you next employed after leaving the steamship "Southwark" and in what capacity?

A. I joined the Leyland Line Steamship "Flavian" as third engineer.

22 XQ. If in answer to the fourth interrogatory you have not stated in what capacity you have been employed upon various steamships since leaving the service of the steamship "Southwark," please state fully what positions you have occupied upon said vessels?

A. One trip in the "Athenian" as 3d engineer, 4th engineer of the "Armenian" for two years. After that I went 2d engineer of the "Armenian." After that chief engineer of the "Alsatian;" I was two voyages in her and then I went to the "Flavian" as chief engineer, and I now hold that position.

23 XQ. Upon what day and at what hour did you commence working the refrigerating machinery of the steamship "Southwark" for the purpose of cooling the chamber for the reception of the fresh meat cargo?

A. About three days before leaving port. We would give 72 hours from the time we were advertised to sail. I cannot otherwise fix the day or hour at which we commenced working the refrigerating machinery for the purposes named.

24 XQ. What officer of the vessel took the various temperatures and made entries thereof in the engineer's log of the steamship "Southwark"?

A. The observations were taken by the refrigerating engineer and he worked out the average under my supervision and I made the entries in the log.

25 XQ. If in answer to the seventh interrogatory you say that the breaking down of the machinery was caused by the high temperature of the incoming water, state what the temperature of that water was and how you know its temperature?

A. I have never said that it was caused by the high temperature of the incoming water.

26 XQ. The refrigerator log shows that the temperature of the incoming brine on July 4th was 40 degrees. State whether that temperature was taken before or after the departure of the ship from the dock?

A. The entry is an average of the whole day's observations, and would, therefore, include the temperatures which must have been taken after we left the dock.

27 XQ. State also whether that was a proper degree of temperature for the incoming brine on that day either before or after the departure of the vessel from the dock?

A. Of course, that is a little high for the ordinary working of the machine. I can only put it down to the excessive temperature, it being very hot weather and the meat when put in being at a heat of 54 degrees.

28 XQ. At what time did the vessel leave the dock, and at what time were the doors of the commercial box, in which the fresh meat was stored, closed?

A. I cannot answer this interrogatory after the lapse of time and without documents to refer to.

29 XQ. State whether the temperature of 40 degrees of the incoming brine on July 4th indicated whether the refrigerating machinery was working in a proper and efficient manner?

A. Had the weather been cooler the machinery would have got a lower temperature.

30 XQ. The refrigerator log shows that the pressure of the refrigerator gauge on July 4th was forty pounds. State whether that pressure indicated whether the refrigerating machinery was working in a proper and efficient manner?

A. It was right except that the excessive heat we had at the time was causing the machine to work at a high temperature. Had it been cooler weather the machinery would have got a lower temperature.

31 XQ. The entry in the refrigerator log for July 4th shows that the pressure on the condenser gauge on that date was 210 pounds. State if that pressure indicated whether the refrigerating machinery was working in a proper and efficient manner?

A. That was caused by exactly the same thing by the high temperature of the weather.

32 XQ. State whether the various temperatures and pressures contained in the extract of log attached to the interrogatories, under the date of July 4th, indicate if the refrigerating machinery of the steamship "Southwark" was then working in a proper and efficient manner?

A. It was due to the excessive heat of the weather at the time. When we got further down to cooler weather the machine cooled right.

33 XQ. Were the various degrees of temperature and amounts of pressure upon the different parts of the machinery taken while the machinery was being run prior to the reception of cargo, for the purpose of cooling the chamber, as well as after its reception and during the voyage?

A. The various degrees of temperature and the amounts of pressure upon the different parts of the machinery were taken regularly, but they were not logged.

34 XQ. At what time did you or any of the officers of the vessel commence taking the various temperatures and amounts of pressure upon the various parts of the refrigerating machinery?

A. After the machine has started to cool the box down and before we get the beef at all the refrigerating engineer goes around and takes the different temperatures the same as we do at sea to see how the box is coming down. After we get to sea we take them again in the

usual way. I cannot tell the exact times. They were taken four times a day.

35 XQ. State whether all the records of temperature and pressure taken from the time the refrigerating machinery commenced to work are contained in the engineer's log?

A. The average records are contained in the engineer's log, as I have previously stated.

36 XQ. State whether it was not your duty or the duty of some officer of the vessel to insert in the engineer's log all records of temperature and pressure taken during the entire time of the working of the refrigerating machinery?

A. The average was put down. It was not my duty to insert all records.

37 XQ. State whether it was not your duty or the duty of some officer of the vessel to insert in the engineer's log a record of any and all accidents to any of the machinery of the vessel?

A. I gave a full account of the accident as it happened, and all the details about it in the letter to the office.

38 XQ. State whether you adopted all the measures within your knowledge to put the refrigerating machinery on the steamship "Southwark" in proper and efficient working order prior to her departure from dock?

A. I did everything that was necessary to be done in every way.

39 XQ. State whether you failed, prior to the departure of the "Southwark" upon her voyage, to employ any means whatever within your knowledge, or to adopt any precautions which would have put the refrigerating machinery in better working order and condition, or which would have prevented or rendered less likely the breaking down of the machinery?

A. Nothing so far as I know could have been done in any way to prevent the accident.

40 XQ. State the number of voyages previous to the one in question upon which the steamship "Southwark" had carried cargoes of fresh meat?

A. It might be four or it might be five. I cannot say for certain.

41 XQ. State upon what subsequent voyages during your employment upon the steamship "Southwark" she carried cargoes of fresh meat?

A. She carried fresh meat for two voyages afterwards.

42 XQ. State whether the refrigerating machinery of the steamship "Southwark" was overhauled upon her arrival at Liverpool or upon her next arrival at Philadelphia. If you answer that it was overhauled and repaired at either place state fully and in detail what repairs were made?

A. The machinery was overhauled in Liverpool. The repairs that were effected are mentioned in my letters to Messrs. Richardson, Spence & Co. The broken parts that I mended at sea were replaced by new parts at Liverpool.

(Signed) GILBERT PAUL.

(Amended Interrogatories to WILLIAM SHINN and his Answers thereto.)

WILLIAM SHINN being produced, sworn and examined, deposeth and saith as follows:

1 Q. Do you know the libellants, Martin Fuller & Company, and the respondent or claimant, the International Navigation Company, or either of them, in this case? If so, how long have you known them?

A. I do not know the libellants, Martin Fuller & Co., but I do know the International Navigation Company. I have known them for about ten years and was in their employment during that time.

2 Q. What is your age, residence and present occupation?

A. I am 54 years of age. I reside at New Brighton in the County of Chester and am at present an electrical engineer with the New Brighton Tower and Recreation Ground Cy. Ld.

3 Q. Have you followed the sea, if so, for how long and in what capacity?

A. I have followed the sea as a marine engineer and an electrical engineer.

4 Q. Were you employed on board the steamship "Southwark" in July, 1894, and on the voyage from Philadelphia to Liverpool, leaving Philadelphia July 4th, 1894? And if so, in what capacity, and how long did you continue on said steamship and in the employment of the International Navigation Company? State generally how you have been employed since leaving the service of the International Navigation Company?

A. I was employed on the "Southwark" on the voyage in question as refrigerating and electrical engineer. I joined the "Southwark" on the first voyage she came out and I left in October or November, 1894. Mr. Paul and I left together. I left for private reasons. I have been employed on shore in work connected with electrical machinery.

5 Q. Do you remember the breaking down of the refrigerating machinery in July, 1894? If so, state fully the circumstances as you remember them?

A. I do recollect it. The first that happened was the joint on top of the ammonia condenser blowing. What is known as the bonnet joint. This happened as

we were coming down the river. We cured that and then we started up and she made several revolutions and then we heard heavy knocking in one of the ammonia pumps. We took the ammonia from there and opened it up and found the connecting rod broken. We found two bolts lying in the bottom of the ammonia pump in the dirty oil. Of course we could see the cause then. We also found the ends of the rod were torn out of the bolt hole. We repaired that as well as we could and put it together. Then we found the shaft had been strained. We could not find this out until we joined her up again and commenced to run. It had been caused at the same time. We got that out and straightened it out to the best of our abilities. You cannot do much at sea in a case like this. We got them together again and the machinery worked after that.

6 Q. Please look at the subjoined copy (Exhibit No. 1, September 18, 1895, C. E. Hough), being extract from the log of S. S. "Southwark," Voyage 5, East, for the voyage in question, and state whether the single entries under the various heads for each day represent a single observation on each day or an average of several observations, and if the latter how many such observations were taken, and at what hours?

A. The entries represent an average of four observations taken each day. My watches morning and afternoon were from 2 A. M. to 8 A. M. and from 2 P. M. to 8 P. M., and I used to take two observations in each watch, one as near the beginning of the watch as I could. The others were taken by the man who relieved me sometimes in the first hour after the commencement of his watch.

7 Q. Have you any explanation of the breaking down of the machinery; if so, state it; and what if anything could have been done by yourself or anyone else to have prevented it?

A. I can give no explanation of the breakdown of the machinery. It was working properly when I left. You could not see any defects in the bolts. They were all closed up. It had always worked properly up to the time it broke down. Nothing could have been done by me or by anybody else to prevent it. It was entirely unforeseen. There is no connection between the leaking of the joint of the bonnet and the fracture of the bolts. After we had put the joint right she went away working all right for a few minutes and then the heavy knocking occurred.

8 Q. Referring to the abstract log appended and the temperatures and pressures there noted, do they indicate the cause for the breaking down of the machinery? If so, what?

A. They do not. When you start there are heavier pressures to work against.

9 Q. How had the machinery been working prior to leaving the dock at Philadelphia, say for twenty-four hours or forty-eight hours, and what was the condition of the machinery at the time the steamer left the dock?

A. The engines had worked well. We were reducing the temperature for 50 or 60 hours. As you reduce the temperature the work is easier for the machine and you can afford to slow the machine down. The machinery was in good order when we left the dock.

10 Q. Were or were not any special repairs put upon the refrigerating machinery prior to the voyage in question? It has been stated that the bonnet of the condenser had split prior to sailing, and that it was attempted to be hastily repaired without reference to the shops by the engineers on board; is this true or not?

A. There were no special repairs put upon the refrigerating machinery prior to the voyage in question. Nothing beyond the usual overhaul. It is not true that

the bonnet of the condenser split prior to sailing. Nor was it attempted to be hastily repaired without reference to the shops by the engineers on board. All that happened was that there was a leak in the joint of the bonnet and that we repaired ourselves. It is quite a simple job. All that there is to do is to get the ammonia out, lift the bonnet and slip a new India rubber ring in and screw it down again.

11 Q. Are or are not temperatures noted on the abstract log for July 4th excessive and of themselves sufficient to indicate that the machine was out of order? What effect, if any, upon the machine and its workings has the heat of the outer temperature of air and water and the heat of the meat put into the commercial box?

A. They are not excessive or sufficient to indicate that the machine was out of order. The effect of the heat of the outer temperature of air and water and the heat of the meat would be that you have to work the machinery quicker in order to reduce the temperature. The weather was excessively hot at the time. The heat of the meat when put in would be 54 degrees.

12 Q. What had been the condition of the machinery during the preceding voyages and during those subsequent to the one in question while you remained on board?

A. The condition of the machinery during the period mentioned had always been good.

13 Q. If you know any other matter or thing favorable to the respondent, please state it without being especially interrogated thereto?

A. No.

(Cross-Interrogatories to WILLIAM SHINN and his Answers thereto.)

1 XQ. At whose request have you presented yourself to be examined under this commission?

A. At the request of Messrs. Richardson, Spence & Co.

2 XQ. Were you or were you not subpœnaed to attend before the Commissioner?

A. I attended on a written request.

3 XQ. How did the person requesting your attendance know that you had any knowledge on the subject?

A. Messrs. Richardson, Spence & Co. knew that I had been employed as refrigerating and electrical engineer on the voyage in question on the "Southwark."

4 XQ. What conversation occurred between the said person and yourself at the time of your being requested to attend, or at any other time?

A. He asked me to go and state what I knew about it.

5 XQ. Have you held any, and what conversation with any other persons and whom, in regard to your testimony in this cause?

A. No, I have not had any conversation with anyone.

6 XQ. Have you been previously examined under oath or otherwise, and, if so, when, where and by whom, on the subjects inquired of in the interrogatories in chief?

A. No.

7 XQ. Have you received any letters or communications of any kind from the party by whom you have been called as a witness or from any person on his behalf, respecting the matters in controversy in this suit? If you answer that you have received any letters or communications, annex the same to your answers?

A. Only to ask me to attend and give the statement. The letters and telegram I received simply asked me to

attend. I annex the letters and telegram I received hereto.

8 XQ. Have you refreshed your memory in any way for the purpose of testifying in this case?

A. No, I had no means of doing so.

9 XQ. If you answer that you have refreshed it, state fully and in detail how you have done so?

A. I refer to my previous answer.

10 XQ. If you have refreshed your recollection, during the taking of your deposition, by referring to any papers, memoranda books, writing of any character whatever, attach the same to your deposition and state when such paper, memoranda book or writing was made and by whom?

A. I have only referred to the extract from the abstract log attached to the commission.

11 XQ. Have you seen the interrogatories in chief or these cross-interrogatories prior to your examination by the Commissioner, or have you had the same exhibited or propounded to you by any person heretofore?

A. I have not.

12 XQ. If you answer yes, state from whom you received the same and by whom they were exhibited or propounded to you?

A. I have already answered no.

13 XQ. Have you at any time heretofore been requested by anyone acting on behalf of the steamship "Southwark" or her owners to testify as to the facts in use in this cause?

A. No, I have only had this one application from Messrs. Richardson, Spence & Co.

14 XQ. If you answer that you have been so requested, state when and by whom, and why your testimony has not heretofore been taken?

A. I cannot tell why my testimony has not heretofore been taken.

15 XQ. If you answer that you have not been requested to testify as to the facts in use in this cause by anyone acting on behalf of said steamship or her owners, state why your testimony has not been taken if within your knowledge?

A. I do not know.

16 XQ. When did you join the steamship "Southwark" as chief engineer?

A. I never was chief engineer, I was electrical and refrigerating engineer.

17 XQ. How many voyages have you made as chief engineer of that steamship prior to the one commencing July 4, 1894, and upon how many of these voyages had cargoes of fresh meat been carried?

A. I never was chief engineer and I do not know how many cargoes of meat she carried previous to that.

18 XQ. Name the vessels upon which you had theretofore been employed as chief engineer and state which of those vessels carried regular cargoes of fresh meat?

A. I have never been a chief engineer.

19 XQ. At what date did you cease to be chief engineer of the steamship "Southwark"?

A. I refer to my previous answers.

20 XQ. Did you cease to be chief engineer of the steamship "Southwark" voluntarily or were you discharged by the owners of the said steamship or any of their representatives, or were you requested by them in any manner to resign or give up your position as chief engineer? If you answer that you were discharged or requested to resign, state what officer of the company so requested you, or if you left voluntarily state to what officer of the company you handed your resignation?

A. I never was chief engineer.

21 XQ. Upon what vessel were you next employed after leaving the steamship "Southwark," and in what capacity?

A. I have not been to sea since.

22 XQ. If in answer to the fourth interrogatory you have not stated in what capacity you have been employed upon various steamships since leaving the service of the steamship "Southwark," please state fully what positions you have occupied upon said vessels?

A. I have been ashore ever since.

23 XQ. Upon what day and at what hour did you commence working the refrigerating machinery of the steamship "Southwark" for the purpose of cooling the chamber for the reception of the fresh meat cargo?

A. I cannot say on what day and at what hour, but our regular practice was to commence cooling down two days before the meat was to come down. It is possible in that hot weather I may have started to cool down three days before.

24 XQ. What officer of the vessel took the various temperatures and made entries thereof in the engineer's log of the steamship "Southwark"?

A. I took the temperature and calculated the averages, and the chief engineer entered it in the log.

25 XQ. If in answer to the seventh interrogatory you say that the breaking down of the machinery was caused by the high temperature of the incoming water, state what the temperature of that water was and how you know its temperature?

A. I have never stated that the break down was caused by the hot temperature of the incoming water.

26 XQ. The refrigerator log shows that the temperature of the incoming brine on July 4th was 40 degrees. State whether that temperature was taken before or after the departure of the ship from the dock?

A. In all probability the observations upon which the average is taken would be part before and partly after the ship left the dock. It might be two or one were taken before.

27 XQ. State also whether that was a proper degree of temperature for the incoming brine on that day either before or after the departure of the vessel from the dock?

A. It is not high considering the heat of the weather. It was excessively hot. It was the hottest weather I ever experienced there.

28 XQ. At what time did the vessel leave the dock, and at what time were the doors of the commercial box, in which the fresh meat was stored, closed?

A. I could not tell the time we left the dock. The doors of the room were closed directly the meat was finished being put in. As near as I can remember they would bring it down about 7 or 8 o'clock at night, and it would take three or four hours to put it in. Immediately the meat was all in the doors were shut.

29 XQ. State whether the temperature of 40 degrees of the incoming brine on July 4th indicated whether the refrigerating machinery was working in a proper and efficient manner?

A. This showed nothing wrong with the machinery.

30 XQ. The refrigerator log shows that the pressure of the refrigerator gauge on July 4th was forty pounds. State whether that pressure indicated whether the refrigerating machinery was working in a proper and efficient manner?

A. That is our general working pressure. It averaged anything from 30 to 40 according to the heat.

31 XQ. The entry in the refrigerator log for July 4th shows that the pressure on the condenser gauge on that date was 210 pounds. State if that pressure indi-

cated whether the refrigerating machinery was working in a proper and efficient manner?

A. It has nothing to do with the working of the machinery. It simply shows that the circulating water is very hot and is not cooling the ammonia down as you would like it to be doing. The circulating water is not coming in as cool as we would like it to come. It is as cool as you can get it with the outside temperature. It is sea water coming from the dock.

32 XQ. State whether the various temperatures and pressures contained in the extract of log attached to the interrogatories, under the date of July 4th, indicate if the refrigerating machinery of the steamship "Southwark" was then working in a proper and efficient manner?

A. These entries indicate to me that the refrigerating machinery of the "Southwark" was then working in a proper and efficient manner and showed there was nothing wrong with the machine.

33 XQ. Were the various degrees of temperature and amounts of pressure upon the different parts of the machinery taken while the machinery was being run prior to the reception of cargo, for the purpose of cooling the chamber, as well as after its reception and during the voyage?

A. The temperatures were taken regularly.

34 XQ. At what time did you or any of the officers of the vessel commence taking the various temperatures and amounts of pressure upon the various parts of the refrigerating machinery?

A. We took the temperature as soon as we started cooling down. We had no regular time for taking it afterwards and would take it from time to time afterwards to know how we were going on. We would know when the beef would be expected down and would want to know what state the room would be in when it arrived.

35 XQ. State whether all the records of temperature and pressure taken from the time the refrigerating machinery commenced to work are contained in the engineer's log?

A. Up to the time of leaving dock there is no record kept. After that we kept the average temperature.

36 XQ. State whether it was not your duty or the duty of some officer of the vessel to insert in the engineer's log all records of temperature and pressure taken during the entire time of the working of the refrigerating machinery?

A. It was not the custom to do so before we left the dock. We had no orders to do so, and there was no space in the log for it.

37 XQ. State whether it was not your duty or the duty of some officer of the vessel to insert in the engineer's log a record of any and all accidents to any of the machinery of the vessel?

A. That is a matter for the chief engineer.

38 XQ. State whether you adopted all the measures within your knowledge to put the refrigerating machinery on the steamship "Southwark" in proper and efficient working order prior to her departure from the dock?

A. Yes.

39 XQ. State whether you failed prior to the departure of the "Southwark" upon her voyage to employ any means whatever within your knowledge, or to adopt any precautions which would have put the refrigerating machinery in better working order and condition or which would have prevented or rendered less likely the breaking down of the machinery?

A. There was nothing required to be done to the machinery at the time we left. Everything that was needed was attended to.

40 XQ. State the number of voyages previous to the one in question upon which the steamship "Southwark" had carried cargoes of fresh meat?

A. I cannot say.

41 XQ. State upon what subsequent voyages during your employment upon the steamship "Southwark" she carried cargoes of fresh meat?

A. I think she made three voyages after the one in question and she carried meat, I think, on two of these voyages.

42 XQ. State whether the refrigerating machinery of the steamship "Southwark" was overhauled upon her arrival at Liverpool or upon her next arrival at Philadelphia. If you answer that it was overhauled and repaired at either place, state fully and in detail what repairs were made?

A. It was overhauled in Liverpool. There was a new connecting rod, shafts and crank put in the ammonia pump. That was all that was renewed in Liverpool. (Signed) WM. SHINN.

EXHIBIT No. 1, September 18, 1895, C. E. Hough.

Extract from Abstract Log.

S. S. "Southwark," Voy. 5, East.

REFRIGERATOR LOG.				TEMPERATURES		
DATE	No. of Hours Machine Running	Temp. of Incoming Brine	Pressure on Refrigerator Gauge	Pressure on Condenser Gauge	Pressure on Brine Pump Gauge	Ship's Store room
July 4th	24.00	40	40	210	32	36
" 5th	23.37	40	35	190	30	38
" 6th	23.31	40	35	195	30	38
" 7th	23.28	38	34	185	30	35
" 8th	23.30	36	34	185	27	34
" 9th	23.32	36	30	175	27	32
" 10th	23.33	33	30	150	25	30
" 11th	23.31	27	30	145	30	30
" 12th	23.30	25	30	135	32	28
" 13th	23.27	23	30	130	30	28
" 14th	23.26	21	35	125	23	28

TEMPERATURES.

Commercial Rooms.

July 4th—42
" 5th—42
" 6th—42
" 7th—40
" 8th—39
" 9th—39
" 10th—39
" 11th—38
" 12th—35
" 13th—33
" 14th—32

EXHIBITS APPENDED TO COMMISSION.

Liverpool, 5 April, 1900.

WM. SHINN,
19 Wentworth Avenue, Liscard.

"SOUTHWARK" CASE.

DEAR SIR:

You will remember that you gave some notes of evidence to Mr. Dickinson about this. The United States Court has now issued a commission to Mr. H. Bateson and Mr. J. Dickinson to take your evidence and Mr. Gilbert Paul's. Mr. Paul's steamer the "Flavian" is due here to-morrow or Thursday and as soon as she arrives we wish to arrange an early date for you and Mr. Paul to attend at Mr. Dickinson's office and give the evidence formally. We shall give you as long notice as possible, but it may only be a day previous, and we shall be glad to know from you that you will be able to come.

Yours faithfully,

RICHARDSON, SPENCE & Co.,
R. R. S.

John Dickinson,
H. D. Bateson,
Commissioners.

9 April, 1900.

MR. WILLIAM SHINN,
19 Wentworth Avenue, New Brighton.

DEAR SIR:

The Commissioners in the Martin Fuller *v.* "Southwark" case have decided to take the evidence at 2.30 p. m. to-morrow (Tuesday), so we telegraph you asking you to be at our office at 2.15 p. m.

Yours truly,

RICHARDSON, SPENCE & Co.,
R. R. S.

John Dickinson,
H. D. Bateson,
Commissioners.

Dated April 9, 1900.

To WILLIAM SHINN,
19 Wentworth Avenue, New Brighton.

Have arranged for 2.15 to-morrow afternoon. Please be at our office at that hour.

SPENCE.

John Dickinson,
H. D. Bateson,
Commissioners.

(Ex. No. 1, 8 June, 1896, T. A. F.)

S. S. "Southwark,"
July 30th, 1894.

James S. Doran, Esq., Superintending Engineer.

Dear Sir:

I beg to report the arrival of the S. S. "Southwark" off Cape Henlopen at 8.02 P. M. on the 29th inst.

The main engines have worked well throughout the passage. Feed pumps and heater working well. Also the fan engines have worked well.

We have not steamed so well this voyage partly owing to the blocked heating tubes, but the coal supplied in Liverpool this voyage has been of a very inferior quality with more than the ordinary percentage of clinker. We have cleaned 10 fires every watch since we left Queenstown, the fires being full of clinker every eight hours. Owing to so much clinker on the bars we lost a good deal of steam cleaning fires.

We have had no priming this voyage. With the exception of the blocked heating tubes the boilers are in good condition.

On the voyage east the bonnet on the top of the condenser for the refrigerating machine for the commercial box started to leak badly before we got to Reedy Island, and with the heat of the room and the smell of ammonia it was a difficult matter to get it shut off, and the condenser pumped out. As soon as I got it shut off I put the ship's machines on the commercial box. After getting the new joint made on the 5th, and shortly after starting the machine, the after compression pump gave a heavy knock. I exhausted the pump and opened it out and found both connecting rod bolts broken, connecting rod bent, and compression piston cracked. I then disconnected the engines and worked with the single engine, and kept the two boxes going. On the 6th after connecting the engines I found the crank shaft was bent, and it was a very difficult matter to straighten it. On the 8th I had it connected and it worked fairly well until we got to Liverpool. The temperature of the box was 42 degrees when we left Philadelphia, and I was unable to get below that until the 7th when the temperature gradually decreased to 32 degrees. I put the machine down to be thoroughly overhauled in Liverpool, and to have it in repair before the ship got to Philadelphia. I had to get

1 new compression pump piston rod and brasses.

1 compression pump disc and shaft.

1 L. P. cylinder cover.

On the 13th the second L. P. cylinder cover on the Stard. engine was moving a little, and on lifting the top plate I found three of the ribs cracked, and the fourth rib showing a little. I reported it from Queenstown. I thought we would have had to get a new cover, but we had a patch put on and it shows no signs of moving.

On Monday night, the 16th, at 11.00 p. m., when the ship was lying in the Langton Dock when the scaling

boys had come back from their supper, by some means the soot on the air heating tubes for the after end of the port boiler had caught fire, and by the time it was observed 613 tubes were fused and the plates buckled. As there was no time to get new tubes the burned tubes were taken out and the tube plates covered with 3-16 inch iron.

Yours obediently,

GILBERT PAUL,
Chief Engineer.

Dec. 5-99.

"SOUTHWARK."

H. L. Cheyney, Esquire.

Dear Cheyney:

As I told you, the log book has been found by Messrs. Richardson & Spence in one of their storerooms and has been sent to us and is now open to your inspection at any time.

Yours truly,

J. RODMAN PAUL.

And afterwards, to wit. on the 24th day of September, A. D. 1900, the opinion of the court is filed in the words and figures following, to wit:

In the District Court of the United States for the Eastern District of Pennsylvania. In Admiralty.

MARTIN, FULLER & Co.
vs.
STEAMSHIP "SOUTHWARK." } No. 16 of 1895.

McPHERSON, *J.:*

On July 3, 1894, the libellants shipped a quantity of dressed meat by the steamship "Southwark," to be carried from Philadelphia to Liverpool. The vessel was fitted with a refrigerating compartment known as the commercial box and with refrigerating machinery of an approved pattern.

The bill of lading contained the following clause, "It is expressly agreed that the goods shipped hereunder are absolutely at the risk of the owners in every respect, and that the carrier is responsible for no loss, delay, or damage thereto, however arising, including stowage and all risks of breakdown or injury, however caused, either to its refrigerator or its machinery, even though arising from defect existing at or previous to the commencement of the voyage." The refrigerating machinery had been in use for several years, and had always worked satisfactorily. Shortly before the voyage in question, it had been inspected by a competent official, and was apparently in good order. Within two or three hours after leaving port, however, a joint was found to be leaking, and it was necessary to stop the machinery in part so that the needful repair could be made. This was finished on July 5th, and the machinery was again started.

On the same day a more serious breakdown occurred, and upon examination it was found that certain bolts and rods in the compression pump were broken and bent, and the piston was cracked. Later the crank shaft also was discovered to be bent, and not until July 8th was the machinery again in full operation.

Its efficiency in reducing the temperature of the commercial box had, of course been either suspended or impaired during the breakdown, and even after the repairs had been completed the temperature was not sufficiently lowered until the last day of the voyage. The injured parts were replaced in Liverpool, and since then the machinery has done its work well. Upon the arrival of the vessel in England, the libellants' meat was found to be injured by the unduly high temperature of the commercial box, the loss in market value being said to exceed $6,000.

The question presented by these facts is this: What effect should be given to the foregoing clause in the bill of lading? As it seems to me, the answer is furnished by the decision of the court of appeals of the second circuit in The Prussia, 93 Fed. 837, as the following quotation will, I think, make clear:

"It is the duty of the carrier by water, when he offers a vessel for freight, to see that she is in suitable condition to transport her cargo in safety; and he impliedly warrants that this duty has been fulfilled. And when he proposes to transport across the Atlantic a cargo of frozen meat, we agree, as was adjudged in The Maori King (1895) 2, Q. B. 550, and Queensland Nat. Bank *vs.* Peninsula and Oriental Steam Nav. Co. (1898) 1 Q. B., 567, that he must be taken to stipulate with the shipper that the vessel is provided with suitable apparatus of requisite efficiency to enable him to deliver it in proper order. But it is competent for the parties, by express contract to modify the obligations which would otherwise devolve upon the carrier, including even that of providing a seaworthy vessel; and short of any modification which will exempt him from the consequences of his own misconduct or negligence, or those for whom he is responsible, such contracts, though strictly construed against the carrier are given full effect. Among them, one of the most common is that of exempting carriers from liability for latent defects in the hull or machinery of the vessel. As was said by Mr. Justice Brown in The Carib Prince, 170 U. S., 664, 18 Sup. Ct., 757: 'To exempt a vessel from the consequence of such a defect is neither unreasonable nor unjust, and most of the modern bills of lading contain a stipulation to that effect.'

"In the present case the bill of lading contained a clause especially addressed to restricting the liability of the carrier in respect to the transportation of dressed meat, and the parties to the instrument agreed that the carrier should not be responsible for any loss or damage to it arising from defects or insufficiencies in any part of the refrigerating apparatus, whether arising before or after the shipment.

"While this clause would not extend to exempt the carrier for loss or damage caused by his own negligence, we have no doubt it protects him against such as arises in consequence of a latent defect in the apparatus existing without his knowledge or negligence.

"The express contract displaces the warranty which would be implied in its absence."

The clause then under consideration was essentially the same as the clause now before the court, and I think the decision must be the same now as then. I see no sufficient evidence of negligence on the part of the vessel, either in supplying unsuitable machinery or in failing to inspect properly, or in improper management (whatever the scope of the word "management" may be), and without proof of negligence on the part of the ship the libellants' case must fail.

It was argued that the machinery could not have been in good condition at the beginning of the voyage because the breakdown occurred so soon after the vessel set sail; and therefore that in analogy to the rule of evidence concerning seaworthiness, the burden of proof was on the respondent to explain the causes of the various accidents, but I do not think the conclusion follows, where the carrier's liability has been modified by such an agreement as the clause in question. The warranty that a ship in this business is fit at the beginning of a voyage to carry dressed meat safely—which was decided to be im-

plied where the bill of laden is silent, The Maori King (1895) 2 Q. B., 550, cannot be implied if the parties have chosen to contract otherwise; and such a contract is clearly expressed by the language now being considered. The burden of proof is, therefore, not upon the carrier, but upon the shipper; and there must be sufficient evidence of the carrier's negligence before the shipper can be allowed to recover. Much of the testimony is directed to this point, and I have given it careful attention, but without being able to take the libellants' view. No doubt the machinery, for some reason or reasons, did not do its work, and no doubt, also, its failure to reduce the temperature sufficiently was due to the several breakdowns, but I cannot discover sufficient evidence to satisfy my mind that the vessel was to blame for the accidents Unless negligence is proved, the cause or causes of the accidents are not important; for the libellants' express contract relieved the carrier from liability for the consequences of any breakdown, however caused."

The libel must be dismissed with costs.

And afterwards, to wit, on the 12th day of October, A. D. 1900, decree is entered in the words and figures following, to wit:

In the District Court of the United States for the Eastern District of Pennsylvania. In Admiralty.

MARTIN, FULLER & Co.
vs.
STEAMSHIP "SOUTHWARK." } No. 16 of 1895.

And now, to wit, October 12, 1900, this cause having come on to be heard and after hearing the pleadings and proofs and the arguments of the advocates of the several parties and due deliberation being thereon had it is ordered, adjudged and decreed that the libel be dismissed with costs and that the claimant recover of the libellants, Joseph J. Martin, Alfred M. Fuller, William Fuller and Thomas B. Shriver, trading as Martin, Fuller & Co., and their stipulator, the Merchants' Trust Co., his costs to be taxed, said stipulator's liability not to exceed amount of their stipulation, to wit, $250.

Approved:

H. L. CHEYNEY,
JOHN F. LEWIS,
Proctors for Libellants.

And afterwards, to wit, on the 26th day of October, A. D. 1900, the libellants, by their proctors, John F. Lewis, Esq., and Horace L. Cheyney, Esq., present their petition for leave to appeal from the decree of the court in this case to the next United States circuit court of appeals for the third circuit, together with an assignment of errors, and the appeal is allowed upon the usual conditions, and the said petition and assignments of error being filed are in the words and figures following, to wit:

To the Honorable John B. McPherson, judge of the district court of the United States for the eastern district of Pennsylvania, in admiralty:

The petition of Joseph J. Martin, A. M. Fuller, William M. Fuller and Thomas B. Schriver, late trading under the firm name of Martin, Fuller & Company, respectfully represents:

That they heretofore filed a libel in this court against the steamship "Southwark" to recover the sum of six thousand and thirty-six dollars for loss on a cargo of fresh meats shipped on board said steamship from Philadelphia to Liverpool.

That this honorable court on October 12, 1900, entered a decree dismissing said libel and awarding the costs to the respondent.

That your petitioners believe said decree is erroneous and that injustice will be done to them if the same should be carried into effect and they, therefore, pray for leave to appeal from said decree to the circuit court of appeals of the United States for the third circuit.

HORACE L. CHEYNEY,
JOHN F. LEWIS,
Proctors for Libellants.

EASTERN DISTRICT OF PENNSYLVANIA, *ss:*

Horace L. Cheyney, being duly affirmed according to law, says that he is one of the proctors for the petitioners and that the above appeal is not taken for delay.

HORACE L. CHEYNEY.

Affirmed and subscribed before me this 26th day of October, A. D. 1900.

WM. W. CRAIG,
Deputy Clerk.

Assignments of Error.

The learned court erred in entering said decree of October 12, 1900, dismissing said libel.

HORACE L. CHEYNEY,
JOHN F. LEWIS,
Proctors for Libellants.

Circuit Court of Appeals, March Term, 1901.

MARTIN, FULLER & COMPANY, Appellant,
vs.
STEAMSHIP "SOUTHWARK," Appellee. } No. —.

It is hereby agreed that the record to be printed for use upon the argument of this cause shall consist of the following:

1. Libel.
2. Answer.
3. Depositions of libellant and respondent and exhibits.
4. Opinion of court.

5. Decree.
6. Petition for appeal and assignments of error.

HORACE L. CHEYNEY,
JOHN F. LEWIS,
Proctors for Libellants.
J. RODMAN PAUL,
For Appellee.

And afterwards to wit on the eighth day of March A. D. 1901, this cause being called for argument on the transcript of record from the district court of the United States for the eastern district of Pennsylvania, before Hon. M. W. Acheson, Hon. George M. Dallas, and Hon. George Gray, circuit judges, and being argued by counsel for the respective parties, and the *the* court not being fully advised in the premises takes further time for consideration thereof.

And afterwards to wit: on the thirteenth day of May, A. D. 1901, comes the parties aforesaid by their counsel aforesaid, and the court now being fully advised in the premises renders the following opinion, to wit:

In the United States Circuit Court of Appeals for the Third Circuit.

JOSEPH J. MARTIN, ALFRED M. FULLER, and THOMAS B. SCHRIVER, Copartners Trading as Martin, Fuller & Company,
v.
THE STEAMSHIP "SOUTHWARK," Whereof the International Navigation Company is Owner.

Before Acheson, Dallas, and Gray, circuit judges.

DALLAS, *Circuit Judge:*

The appellants suppose that the learned judge of the district court misconceived the ground upon which they rested their right of recovery. They have extracted a single sentence from his opinion, which, it is said, shows that he assumed that their case was based upon the facts that the rotting of the meat (for which the libel prayed an award of damages) "was due to the breakdowns of the machinery, and that the breakdowns were caused by negligence;" whereas their actual contention was, and is, "1. That an improperly high temperature existed in the commercial box before the accidents, namely, (1) at the time the meat was received, and (2) at the time the ship sailed, and that it was solely due to the unfit condition of the refrigerating machinery. 2. That even if the breakdowns occurred, as the respondents assert, an hour or two after the vessel sailed, this was evidence that the machinery was in unfit condition at the time of the receipt of the meat and the beginning of the voyage."

The court below did say that the machinery supplied by the appellee failed to reduce the temperature sufficiently; that this was due to the several breakdowns, and that the vessel was not to blame for them; but it also referred to and rejected the argument "that the

machinery could not have been in good condition at the beginning of the voyage because the breakdown occurred so soon after the vessel set sail." It is evident therefore, that the position which the appellants now take was considered and was decided to be untenable because the rotting of the meat in question was *not* due to any condition of temperature or of machinery which existed when it was received or at the time of sailing, but to the breakdowns that subsequently happened, and that the occurrence of these accidents so soon after the vessel had sailed did not relieve the shippers (appellants) from the burden of proving the carrier's (appellee's) negligence. In so dealing with the case the learned judge did not overlook, but, manifestly, disposed of the libellants' contention; and our independent examination of the record has led us to the conclusion that he disposed of it correctly. His opinion, which may be found in 104 Fed. Rep., 103, sufficiently states the facts and rightly rules the law.

The decree is affirmed.

Filed May 13, 1901.

In the United States Circuit Court of Appeals for the Third Circuit, March Term, 1901.

JOSEPH J. MARTIN, ALFRED M. FULLER, and THOMAS B. Schriver, Copartners Trading as Martin, Fuller and Company, Appellants,

vs.

THE STEAMSHIP "SOUTHWARK," Whereof the International Navigation Company is Owner, Appellee.

No. 8.

Appeal from the district court of the United States for the eastern district of Pennsylvania.

This cause came on to be heard on the transcript of record from the district court of the United States for the eastern district of Pennsylvania, and was argued by counsel.

On consideration whereof; it is now here ordered, adjudged and decreed by this court that the decree of the said district court in this cause, be, and the same is hereby affirmed with costs.

Philadelphia, May 14, 1901.

GEO. M. DALLAS, *Cir. Judge.*

UNITED STATES OF AMERICA, *sct:*

I, William H. Merrick, clerk of the United States circuit court of appeals, for the third circuit, do hereby certify the foregoing pages, from one to two hundred and seventeen inclusive to contain a full, true, complete and faithful copy of the original transcript of record in the case of Joseph J. Martin, Alfred M. Fuller and Thomas B. Schriver, copartners, trading as Martin, Fuller & Company, appellants, *vs.* The Steamship "Southwark" whereof the International Navigation Company is owner, appellee, on file, and now remaining among the records of the said court, in my office.

In testimony whereof, I have hereunto subscribed my name and affixed the seal of the said court, at Philadelphia, this seventeenth day of May, in the year of our Lord one thousand nine hundred and one and of the Independence of the United States the one hundred and twenty-fifth.

Seal United States Circuit Court of Appeals, Third Circuit.

WM. H. MERRICK,
Clerk U. S. Circuit Court of Appeals, Third Circuit.

UNITED STATES OF AMERICA, *ss:*

[Seal of the Supreme Court of the United States.]

The President of the United States of America to the honorable the judges of the United States circuit court of appeals for the third circuit, Greeting:

Being informed that there is now pending before you a suit in which Joseph J. Martin Alfred M. Fuller and Thomas B. Schriver, trading as Martin, Fuller & Company are appellants, and The Steamship "Southwark," whereof the International Navigation Company is owner, is appellee, which suit was removed into the said circuit court of appeals by virtue of an appeal from the district court of the United States for the eastern district of Pennsylvania, and we, being willing for certain reasons that the said cause and the record and proceedings therein should be certified by the said circuit court of appeals and removed into the Supreme Court of the United States, do hereby command you that you send without delay to the said Supreme Court, as aforesaid, the record and proceedings in said cause, so that the said Supreme Court may act thereon as of right and according to law ought to be done.

Witness the Honorable Melville W. Fuller, Chief Justice of the United States, the 28th day of January, in the year of our Lord one thousand nine hundred and two.

JAMES H. McKENNEY,
Clerk of the Supreme Court of the United States.

[Endorsed:] File No. 18,304. Supreme Court of the United States. No. 451, October term, 1901. Joseph J. Martin *et al. vs.* The Steamship "Southwark," International Nav. Co., owner. Writ of certiorari.

Circuit Court of Appeals, Third Circuit.

MARTIN ET AL., Appellants,
vs.
STEAMSHIP "SOUTHWARK."

It is hereby agreed that the certified copy of the record of the circuit court of appeals heretofore filed in the office of the clerk of the

Supreme Court of the United States, shall be taken as a return to the writ of certiorari issued by the Supreme Court.

HORACE F. CHEYNEY,
JOHN F. LEWIS,
Attorneys for Appellant.
J. RODMAN PAUL,
Attorneys for Appellee.

UNITED STATES OF AMERICA, *sct:*

I, William H. Merrick, clerk of the United States circuit court of appeals for the third circuit, by virtue of the foregoing writ of certiorari and in obedience thereto do hereby certify to the Supreme Court of the United States the consent of the counsel for the respective parties thereto annexed as my return to the said writ.

In testimony whereof, I have hereunto subscribed my name and affixed the seal of the said court, at Philadelphia, this eighth day of February in the year of our Lord one thousand nine hundred and two and of the Independence of the United States the one hundred and twenty-fifth.

Seal United States Circuit of Appeals, Third Circuit.

WM. H. MERRICK,
Clerk U. S. Circuit Court of Appeals, Third Circuit.

[Endorsed:] File No. 18,304. Supreme Court U. S. October term, 1902. Term No. 183. J. J. Martin *et al.*, petitioners, *vs.* The Steamship "Southwark." Writ of certiorari and return. Filed Feb'y 10", 1902.